The Structuration of the Networked Public Sphere:

How Politicians Attract Public Attention on Social Media Platforms

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For Mirjam

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Abstract

Politicians worldwide have adopted the use of social media platforms, such as Facebook and Twitter, to gain attention in the networked public sphere. To date, scholars have focused on either politicians' communication or their platform structures while neglecting to examine the dynamic and reciprocal interaction between the two. To bridge this research gap, I complement the networked public sphere with Giddens's (1984) theory of structuration. The *structuration of the networked public sphere* focuses on the interplay between platform structures and user behavior, thereby overcoming the dichotomy of focusing on only one of these, and adds an explanatory perspective to the descriptive models.

I apply this theoretical framework to undertake an empirical study of politicians' social practices in the networked public sphere. Because social practices depend on three modalities (interpretive scheme, facility, and norms), my analysis connects three research strands: politicians' communication behaviors, their use of authoritative and allocative resources, and their compliance with the norms of platforms.

Using qualitative network analysis, quantitative content analysis, and computational methods, I analyze politicians' social practices, which reveal their strategic targeting of highly influential accounts (e.g., other politicians' or journalists'); their likely use of an emotional communication style, which triggers reactions; their need for allocative resources, which is manifested in an active digital followership; and the possible use of social bots to artificially increase politicians' popularity.

Because platforms serve as intermediaries in democratic societies, this synopsis aims to stimulate future research into the structuration of the networked public sphere, which focuses on the interplay between platforms and their users, the emerging social practices, and the unintended consequences that may require regulation so as not to endanger democracy but, rather, strengthen it.

Zusammenfassung

PolitikerInnen auf der ganzen Welt nutzen Social Media Plattformen wie Facebook und Twitter, um Aufmerksamkeit in der vernetzten, politischen Öffentlichkeitsphäre (networked public sphere*)* zu gewinnen. In der Forschung wurde jedoch bisher die dynamische und reziproke Interaktion der Kommunikation von PolitikerInnen mit den Plattformstrukturen vernachlässigt. Um diese Forschungslücke zu schliessen, komplementiere ich die "networked public sphere" mit die Theorie der Strukturation von Giddens (1984): Die Strukturation der "networked public sphere" fokussiert auf die (bisher vernachlässigte) Interaktion und ergänzt das bisher deskriptive theoretische Modell um eine erklärende Perspektive.

Das Modell wird angewendet, um die sozialen Praktiken von PolitikerInnen empirisch zu untersuchen. Da soziale Praktiken drei Modalitäten umfassen (interpretative Schemata, Fazilitäten und Normen) verbinde ich drei Forschungsstränge: Wie PolitikerInnen kommunizieren, autoritative sowie allokative Ressourcen einsetzen und die Normen der Plattformen einhalten. Mittels qualitativer Netzwerkanalyse, quantitativer Inhaltsanalyse und computergestützten Methoden konnte ich aufzeigen, wie PolitikerInnen, strategisch einflussreiche Nutzer ansprechen (bspw. JournalistInnen oder PolitikerInnen), einen Reaktionen auslösenden, emotionalen Kommunikationsstil verwenden (werden), eine aktive, digitale Anhängerschaft benötigen und Social Bots einsetzen (könnten), um ihre Popularität zu steigern.

Plattformen können als Intermediäre fungieren, um das Funktionieren der Demokratie sicherzustellen. Diese Synopse zielt darauf ab, dass der vorgeschlagene theoretische Rahmen in zukünftiger Forschung genutzt wird, um die Interaktionen zwischen NutzerInnen und Plattformen, soziale Praktiken und die unbeabsichtigten Konsequenzen zu untersuchen, die möglicherweise Regulationen fordern, damit die Demokratie nicht in Gefahr gerät, sondern gestärkt wird.

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1 Introduction

Politicians around the globe have adopted social media platforms such as Facebook and Twitter in order to gain attention in the networked public sphere (e.g., Davis, Holtz-Bacha, & Just, 2017). To date, the research has focused either on politicians' communication to gain attention (Bene, 2017; Borah, 2016; Heiss, Schmuck, & Matthes, 2018; Hemsley, 2019; Larsson, 2015; Xenos, Macafee, & Pole, 2017), or on how platform structures moderate the distribution of attention (Gillespie, 2018; Just & Latzer, 2017; Nieborg & Helmond, 2019; Pariser, 2012). Yet, since attention is distributed through reactions such as 'likes' on Facebook or 'retweets' on Twitter (e.g., van Dijck & Poell, 2013), the extent of attention depends on the interactions between politicians' communication and the specific structure of each platform (Bucher & Helmond, 2018; Klinger & Svensson, 2015; van Dijck & Poell, 2013), which unfortunately has not yet been investigated.

To address this research gap, I first expand the theoretical framework of the networked public sphere with the theory of structuration (Giddens, 1984), which complements the networked public sphere with a focus on the interactions between politicians' actions and platforms' structures. Through such interaction, social practices emerge that should attract attention in the networked public sphere. I then empirically apply the expanded theoretical framework – which I call *the structuration of the networked public sphere* – to politicians on Facebook and Twitter so as to investigate *the emerging social practices to attract public attention in the networked public sphere.*

I have conducted four empirical studies, focusing on the three modalities of social practices: The *interpretive scheme* is analyzed by whom politicians talk and listen to and by the use of four communication styles (Keller, under review; Keller & Kleinen-von Königslöw, 2018b). I analyze *facility* by asking which allocative and authoritative resources (e.g., financial resources and large followership) lead to attention (Keller &

Kleinen-von Königslöw, 2018a). I investigate *norms* via the question whether politicians have turned to the manipulative use of social bots so as to attract attention (Keller & Klinger, 2019).

My analysis of the *interpretive scheme* showed that politicians are neither unaware of platforms' interactive potential nor that they do not interact with anyone on them, but that their communication reflects their decision to maximize their attention: They favor addressing highly influential users (e.g., journalists) over less influential ones (e.g., lay citizens) (Keller, under review) and may in future use a reaction-triggering style rather than a discursive communication one (Keller & Kleinen-von Königslöw, 2018b). Studying the *facility* has shown that politicians' offline power to dominate attention (e.g., mirrored in their domination of traditional media coverage) is reflected online, but only to an extent, owing to platforms' unique specificities; the key is to attract a large and active online followership (Keller & Kleinen-von Königslöw, 2018a). The analysis of *norms* has shown that political accounts have artificially increased their popularity, and platforms seem reluctant to enforce their terms of service (ToS) (Keller & Klinger, 2019), possibly leading to the use of artificial popularity to attract genuine attention.

This synopsis contributes to future research into the networked public sphere – especially to politicians' social practices in the networked public sphere – theoretically, empirically, methodologically, and with implications for society and possible regulation for platforms: Theoretically, this synopsis contributes by expanding the theoretical framework of the networked public sphere with the theory of structuration (Giddens, 1984), thereby responding to the call for a platform-sensitive approach by focusing on the interplays between platforms' structures and users' actions. Empirically, it provides explanations for politicians' social practices regarding three major research areas in the field of political communication in the networked public sphere: the interactive potential of platforms and how politicians communicate, the democratization of the networked

public sphere and which resources lead to attention, and the use of social bots to attract genuine public attention. Methodologically, various methods – from qualitative network analysis to computational methods – serve as guidance for future studies of social practices in the networked public sphere. Finally, the insights from the empirical findings have implications for society and possible regulation for platforms that provide the structures of the networked public sphere.

In this synopsis, I start by addressing the questions how the emergence of the Internet and social media platforms have required scholars to rethink how the 'new' public sphere is constituted and how its logic demands studying the reciprocal dynamics between platforms' structures and their users. I then introduce the theory of structuration and apply its key elements to the networked public sphere. Public attention is presented as the main driver of the dynamics of the structuration of the networked public sphere, and the roles of reactions such as *likes* or *retweets* are discussed. I then focus on the empirical application of the theory of structuration of the networked public sphere, i.e. how the dynamic between politicians' communication behaviors with the goal of attracting maximum public attention and platforms' structures produces social practices in the networked public sphere. I discuss the results and put them in a broader, international context. In the final section, I address limitations and propose a future research agenda.

2 The Emergence of the Networked Public Sphere

Theories of the public sphere focus on communicative spaces in which different actors with different experiences, arguments, ideas, and opinions can discuss politically relevant issues and form public opinion (Dahlgren, 2005; Gerhards & Neidhardt, 1993; Rauchfleisch & Schäfer, 2015; Wessler & Rinke, 2013). This includes that political actions such as proposing a modification to a law, the subsequent discussion about it, and the possible outcome in the form of a new law are publicly visible to others in such a communicative space (Gerhards, 1994; Gerhards & Neidhardt, 1993). In doing so, communicative spaces allow democratic societies to form collective binding decisions for society, that is, to function (e.g., Gerhards & Neidhardt, 1993).

Communicative spaces are differentiated by three levels: medially constructed public spheres (e.g., print news media, radio, or TV), topical public spheres (e.g., demonstrations), and encounter public spheres (e.g., incidental encounters with people on the street) (Jarren & Donges, 2011; Neidhardt, 1994). However, the emergence of the Internet and, later, social media platforms have made it increasingly important to reflect on how the online public sphere can be described (e.g., Dahlgren, 2005): is it yet another medially constructed public sphere?

Although the differentiation of communicative spaces can still account for online, social media platforms converge the three levels: First, and similar to mass media, a platform (e.g., Facebook) offers a medially constructed public sphere by connecting people and algorithmically distributing their content. Further, and second, these platforms provide opportunities to create topical public spheres via the aggregation of voices for instance with the same hashtag (Small, 2010). Third, they show users messages from users they do not know, providing incidental exposure to other political voices at the encounter level (Kaiser, Keller, & Kleinen-von Königslöw, 2018; Yonghwan Kim, Chen, & Gil de Zúñiga, 2013). Thus, platforms are not just a new medially constructed public

sphere, but offer opportunities for topical public spheres and encounter public spheres at the same time, and can therefore be labeled as a new public sphere.

2.1 Labeling the New Public Sphere: The Networked Public Sphere

Many labels have been proposed to capture and differentiate this 'new' public sphere from the 'old,' which included traditional media such as printed newspapers, radio, or television (for an overview, see Schäfer, 2015). The terms ranged from general terms also used to describe the World Wide Web, for instance, the online, virtual, or digital public sphere (Gerhards & Schäfer, 2010; Papacharissi, 2002; Schäfer, 2015), to more specific terms such as "public sphere 2.0" (Ruiz et al., 2011) or the "networked public sphere" (Benkler, 2006; Benkler, Roberts, Faris, Solow-Niederman, & Etling, 2015).

In this synopsis, the label *networked public sphere* (Benkler, 2006) is used for three reasons. First, compared to the aforementioned terms (e.g., virtual), *networked* stresses the shift from a mass-mediated public sphere to the distribution of information through a network – a key element of this new public sphere. Second, the term acknowledges "[…] the increasing freedom individuals enjoy to participate in creating information and knowledge […]" (Benkler, 2006, p. 10) without normatively promoting or predicting the participatory culture that emerges from it such as terms as "public sphere 2.0" (Ruiz et al., 2011).[1] Third, the networked public sphere is broadly defined as "[...] the range of practices, organizations, and technologies that have emerged from networked communication as an alternative arena for public discourse, political debate, and mobilization alongside, and in interaction with, traditional media" (Benkler et al., 2015, p. 596), offering opportunities for future platforms based on information distribution

[1] Public sphere 2.0 refers to the overarching concept of the "the next generation of software," as introduced by O'Reilly (2005, p. 1) that technologically enabled social media platforms, according to Kaplan and Haenlein (2010).

through networks. Thus, the term is broad enough to serve as a definition for future platforms, yet still specific enough to be differentiated from the 'old' public sphere.

2.2 The Dynamic of Two Forces in the Networked Public Sphere

Not only did the convergence of the different levels of the public sphere to one provided by social media platforms lead to the need for a new label, it also introduced a different logic of how the networked public sphere is constituted (Klinger & Svensson, 2015; van Dijck & Poell, 2013). Compared to the public sphere constituted by the mass media, the networked public sphere offers opportunities to be more democratic in the sense that every user can produce content and can publicly distribute it. However, such distribution is also influenced by a platform's structure, especially its algorithms, which moderate whose content is visible to whom (Bucher, 2012; Oremus, 2016; Twitter, 2017; van Dijck, 2013). Thus, two research strands were established: scholars have focused either on users' actions or on how platform structure distribute public attention[2] in the networked public sphere.

On the one hand, scholars have focused on users' actions on platforms that constitute the networked public sphere. Since users' posts are distributed by their followers, friends, subscribers, etc. to a secondary (tertiary, etc.) audience in the networked public sphere (Jacobs & Spierings, 2016; Klinger & Svensson, 2015; Puschmann & Peters, 2014), the importance of individual users has increased, because *they* decide whether to share a post and thereby increase its visibility. Thus, optimists point to the variety of citizen-initiated discussions about multiple political topics (Rheingold, 2000). They refer to examples in which these platforms are used to cooperate

[2] I follow Webster (2011), who defined public attention as "the extent to which multiple individuals (i.e., agents) are exposed to cultural products across space and/or time" (p. 45). The definition is discussed in the section 'Public Attention as Driver of the Structuration'.

with others so as to improve "[…] the practiced experience of democracy […]" (Benkler, 2006, p. 9). They also point to the possibility of individuals going viral (Klinger & Svensson, 2015; Nahon & Hemsley, 2014), i.e. despite users' limited followership (online and possibly offline), their messages can be shared across the network and can reach a larger public – similar to someone who may have invested much money to receive a similar amount of attention or is well known owing to their past actions. Such a redistribution of attention could lead to an equalization (e.g., Samuel-Azran, Yarchi, & Wolfsfeld, 2015) or a democratization of attention. Pessimists state that political involvement becomes polarized, because some users benefit from the greater choice of information and become knowledgeable, while others avoid political information altogether (Prior, 2005, 2010). Also, they say, these platforms further fragment the public sphere: the abundance of information can lead to an audience driven by the choices of users and, given that users want to avoid cognitive dissonance (Festinger, 1957), they specifically select news they agree with, leading to echo chambers (Sunstein, 2009).

On the other hand, however, not only do users' actions decide what gains attention or not; platform structures and especially their algorithms do, too – they select specific posts that users are likely to read or react to (Bucher, 2012; Oremus, 2016; Twitter, 2017; van Dijck, 2013). That is, platform algorithms also decide which posts are further redistributed and gain public attention. Optimists stress that platforms enable users to produce and distribute content publicly and without the content being edited or put in context by a professional journalist (e.g., Dahlberg, 1998; Klinger & Svensson, 2015). Thus, they argue that, owing to the possibility of accessing abundant information across time and space, these platforms enable a more informed citizenry, similar to the Athenian Agora or the New England town hall meetings (Dahlberg, 1998). Pessimists counter among others that sociodemographic factors are reflected in the access to these platforms, creating a digital divide (e.g., van Dijk, 2005); also, these platforms serve primarily those

who are already invested, while those who are disengaged may lag behind even further (the so-called second-level digital divide and the democracy divide) (Min, 2010; Norris, 2008). Further, those able to join a platform may encounter mostly content they agree with. That is, a platform's algorithm would show personalized feeds, creating a filter bubble in which users find no news or posts from differing positions (Pariser, 2012).

Given the scope of the networked public sphere and its two research strands, studies have remained primarily one-sided. Subsequently, researchers have described either how users do (not) engage in discussions across political ideologies (Barberá, Jost, Nagler, Tucker, & Bonneau, 2015; Gruzd & Roy, 2014; Himelboim, McCreery, & Smith, 2013) or they have called on platforms to update their structure (Pariser, 2012) or to at least change their moderation behavior (Gillespie, 2018). They do not focus on interactions between users' actions and platform structures in the networked public sphere, yet this is key.[3]

The networked public sphere is highly dynamic, since the platform structures are continually updated and their algorithms learn from the platform users' behaviors, such as users' decisions whom to follow and how they reacted (e.g., with a like, retweet, share, etc.) (Bucher, 2012; Oremus, 2016; Twitter, 2017; van Dijck, 2013). That is, the networked public sphere is subject to change with every user click and with every change to a platform. Thus, studying the networked public sphere requires a platform-sensitive approach (Bucher & Helmond, 2018) that focuses on the interplays between users' actions and platform structures. However, to account for interactions, the theoretical

[3] A noteworthy exception is the analysis of users' and algorithms' selection of ideologically varying content by Bakshy, Messing, and Adamic (2015): While users are exposed to ideologically discordant content on Facebook, their selection plays a larger role than Facebook's algorithm to encounter news items with which they agree.

scope needs to be widened. I expand the networked public sphere with Giddens's (1984) theory of structuration.[4]

The networked public sphere can be linked to Giddens's (1984) theory of structuration by its central elements, communicative spaces (i.e. structures) and individuals' actions, and complemented by Giddens's (1984) term of structuration. The structurational approach focuses neither only on platform's structures nor only on user actions, but on the reciprocal process (i.e. structuration): users' actions constitute and are guided by the communicative spaces and continuously (re)produce the networked public sphere. In a Giddensian spirit, guidance refers to both the facilitation and hindering of political actions. Thus, the connecting theorem (Gerhards, 1994) of the networked public sphere with the perspective of Giddens's (1984) theory of structuration is: the networked public sphere consists of communicative spaces that guide and are constituted by individuals' actions.[5]

[4] Gerhards and Neidhardt (1993), Gerhards (1994), Neuberger (2004), and Weder (2008), sought to complement (networked/non-political) theories of the public sphere with other actor-focused theories. The most similar attempt to mine was by Gerhards (1994), who combined theory of the public sphere with the rational choice model. His goal was to complement the descriptive strength of theories of the public sphere with the explanatory strength of actor-focused theory. However, many behaviors – especially in the networked public sphere – does not fulfill the premises of the rational choice model. The use of social media platforms may involve non-rational behaviors (e.g., day-to-day behavior) or may be driven by a moral decision (e.g., for politicians to keep close to citizens) – according to Blau (1997), Giannakos, Chorianopoulos, Giotopoulos, and Vlamos (2013), and Jungherr (2016). Thus, I selected a different actor-focused theoretical model with less controversial premises than the rational choice model and with a focus on the interplays between user actions and platform structures.

[5] For comparison, it was defined as "communicative spaces in which different actors with different experiences [...] can discuss politically relevant issues and form a public opinion" in the beginning of the section. "Individual actions" now subsumes the former statement of discussing politically relevant issues and forming a public opinion.

3 The Structuration of the Networked Public Sphere

Giddens's (1984) theory of structuration has been used widely (for an overview, see Phipps, 2001). For instance, it was applied to complement the (non-political) public sphere theory (Weder, 2008), to enhance the systems theory of the media environment (Donges, 2008), to explain the media's marketplace of attention (Webster, 2011), and to enhance understanding in management and organizational communications (Bachmann, 2017; Braun, 2002; Röttger, 2015; Zerfaß & Möslein, 2009), especially in journalism and media companies (Altmeppen, 2006; Sydow & Windeler, 2004; Wyss, 2002, 2016). Structuration theory has also been applied to explain technologies generally (Orlikowski, 1992), specifically to how different features of advanced technologies such as the group decision support system (GDSS) influences its users' behaviors and how their behaviors shape the GDSS (DeSanctis & Poole, 1994), and on how online Q&A communities could be analyzed (Rosenbaum & Shachaf, 2010). However, to my best knowledge, no attempt has been made to complement the networked public sphere with structuration theory.

Thus, I seek to demonstrate how Giddens's (1984) theory of structuration can enhance the understanding of the constitution and dynamics of the networked public sphere and apply Giddens's (1984) terms *structures* to social media platforms, *agents* to platform's users, and *structuration* to the interaction between platforms and their users (for an overview of the elements and their interplays, see Figure 1 on page 15).

3.1 Social Media Platforms as Structures

Giddens loosely defines structures as "rules (and resources)" (Giddens, 1984, p. 17). Rules are differentiated into rules that constitute *signification* (e.g., "the rule defining checkmate in chess is..." [p. 19]) and those constituting *legitimization* (e.g., "it is a rule that all workers must clock in at 8.00am" [p. 19]). Resources are grouped into

authoritative (e.g., power over others) and allocative resources (e.g., financial resources). Thus, structures also offer possibilities to *dominate*.

Structures are "marked by an absence" (Giddens, 1984, p. 25) of agents and as a "source of constraints on the free initiative" of the agents (Giddens, 1984, p. 16), but also enable agents to perform certain acts. However, given structures can be results of agents' previous actions (Giddens, 1984). That is, they exist without the presence of any agents and present the possibilities within an agent can act. Thus, structures can refer to language, technologies, institutions, or to the media landscape in which agents can choose their preferred channels and programs (DeSanctis & Poole, 1994; Giddens, 1984; Orlikowski, 1992; Webster, 2011) or a social media platform.

Giddens's term structures, applied to social media platforms, can be distinguished accordingly: a structure's *signification* enables users to connect and interact with each other. It allows users to create a profile (anonymous or not), connect with others only with (e.g., Facebook friends) or without (e.g., followers on Twitter) the other's consent, and offer interactions among users (e.g., public Wikipedia discussion pages and private chats).

A structure's *legitimization* manifests itself in platforms' terms of service (ToS). For instance, Facebook's "mission is to give people the power to build community and bring the world closer together" (Facebook, 2019c, p. 1) and, if necessary, to sanction behaviors that violate its ToS, for instance by "removing content" (p. 1) or "blocking access to certain features" (p. 1).

Structure's possibilities to *dominate* allow users to execute power: either by increasing users' status (i.e. authoritative resources) or enabling them to spend financial resources (i.e. allocative resources). On Wikipedia, for instance, users are only allowed to create new Wikipedia pages if they have edited at least 10 other Wikipedia pages (Wikipedia, 2019), or users on reddit can be upgraded to "moderators" who then are

empowered to moderate a subreddit (i.e. to remove content, close threads, etc.), which separates them from other users (reddit, 2018). In both cases, users' power vary, depending on their status on the platform. But users do not only differ in their power (i.e. authoritative resources), but also in their possibilities to spend allocated resources. For instance, users can spend money to buy adverts that are shown to a specific audience on Facebook and Twitter (Young Kim et al., 2018; Kreiss & McGregor, 2018; Papakyriakopoulos, Hegelich, Shahrezaye, & Serrano, 2018).

Thus, platforms as structures point to the features they offer (i.e. platforms' signification), to the platform's intended use (i.e. its legitimization), and to possibilities to take actions (i.e. domination).

3.2 Social Media Platforms' Users as Agents

Agents have three key characteristics (Giddens, 1984): They have practical knowledge that relates to what is done, but is hard to express (e.g., how to chat with someone). This is reflected in their daily *communication*. They have discursive knowledge, which refers to the capability to explain their actions and whether this would lead to *sanctions* (e.g., how someone stopped chatting because they had been offended). Finally, they have agency, i.e. the *power* to take actions (e.g., the time and ability to chat).

Agents are "highly 'learned'" (Giddens, 1984, p. 22) in the sense of the knowledge they possess and apply in daily encounters, although it is mostly practical knowledge. However, their "knowledgeability is always bounded" (Giddens, 1984, p. 27), because their actions can yield unintended consequences. They reflexively observe their actions – including the unintended consequences of their actions – and are thus informed for future actions (Giddens, 1984). Motivations for actions are the "wants which prompt it" (Giddens, 1984, p. 6) and differ to reflexive monitoring and rationalization. While

motives mostly supply overall plans or programs, most day-to-day behaviors are not directly motivated (Giddens, 1984).

The agents on social media platforms are these platforms' users. Given that users have the power to join a platform, they possess the practical knowledge to connect with others and to redistribute content on a platform and the discursive knowledge to not post illegal content on the site that would get them sanctioned.

Platform users' actions can have various unintended consequences. For instance, when users create and share content, they do not know who exactly will receive their messages (Bucher, 2012; Litt & Hargittai, 2016; Marwick & boyd, 2011; van Dijck, 2013; van Dijck & Poell, 2013), or they may publish a controversial post that gains traction and is followed up in traditional media, with serious consequences, such as the end of a political career (e.g., Fontana, 2015). Also, users monitor others' behaviors in their newsfeed on platforms such as Facebook or Twitter and can adapt their actions to what they have learned from others (e.g., not to post illegal, career-ending posts on Twitter).

Despite that motivations to join a platform can be assessed, for instance, people who adopt Facebook have a desire to belong or a need for self-representation (Nadkarni & Hofmann, 2012) or the motivation to adopt Twitter is explained by the need for news and to track real-time events (Kwak, Lee, Park, & Moon, 2010), their uses can become a daily habit (Giannakos et al., 2013) or transform into the need for academic success (Searles & Krupnikov, 2018).

Thus, platform users, as agents, relate to their uses of a platform (i.e. their communication), to their compliance with a platform's ToS (i.e. their sanction), and to their agency on a platform (i.e. their power).

3.3 The Interactions in the Networked Public Sphere as Structuration

Structuration refers to the interplays between agents and structures (Giddens, 1984). The continuous interaction between agents' actions and structures becomes visible in social practices (Giddens, 1984). Social practices are observable by the interplays between three modalities (see Figure 1): the *interpretative scheme* reflects the interactions between agents' communication and structures' signification, *facility* the interplays between agents' power and a structure's domination, and *norms* the interaction between agents' sanctions and a structure's legitimization (Giddens, 1984).[6]

A prerequisite for the structuration of the networked public sphere is that users join the platform, connect with others, and create content because platform providers do not create the content for them.[7] If users only published content that contravenes the platform's ToS (i.e. reflected in the modality of norms), had no agency to publish posts (i.e. facility), or had such agency but published no content at all (i.e. interpretive scheme), the networked public sphere could not be constituted. Given users join a platform, connect with one another, and create or redistribute content on the platform, the networked public sphere is constituted in a structurational process (see Figure 1).

Structuration is a dynamic and reciprocal process between a platform's structures and users' actions. Especially since most platforms have implemented algorithms to sort, rank, and make some of the vast number of possible posts accessible to their users (Bucher, 2012; Klinger & Svensson, 2015; van Dijck, 2013; van Dijck & Poell, 2013), posts are also updated depending on users' actions: users can react to posts with platform features such as a *like*, which can be interpreted as a positive evaluation of the algorithm's

[6] Whether agents or structures are more powerful in shaping the other remains unclear. Orlikowski (1992) argued that agents influence a structure in the early stages stronger than their actions are shaped by a structure, but "rigid and routinized views of, and interactions with, technology develop later" (p. 408), which cement a structure and make it harder to change by agents behaving differently.
[7] Exceptions include descriptions of features or their terms of services.

decision to show a post. Yet users can also *report* posts, which indicates a negative but nonetheless useful response for the algorithm, because it serves as additional information about users' preferences of what types of posts they wish to encounter. Thus, every user action and reaction influence a platform's structure, which selects the posts a user is likely to react to. Thus, the interplays between user actions and platform structures are highly dynamic and reciprocal; thereby, social practices emerge.

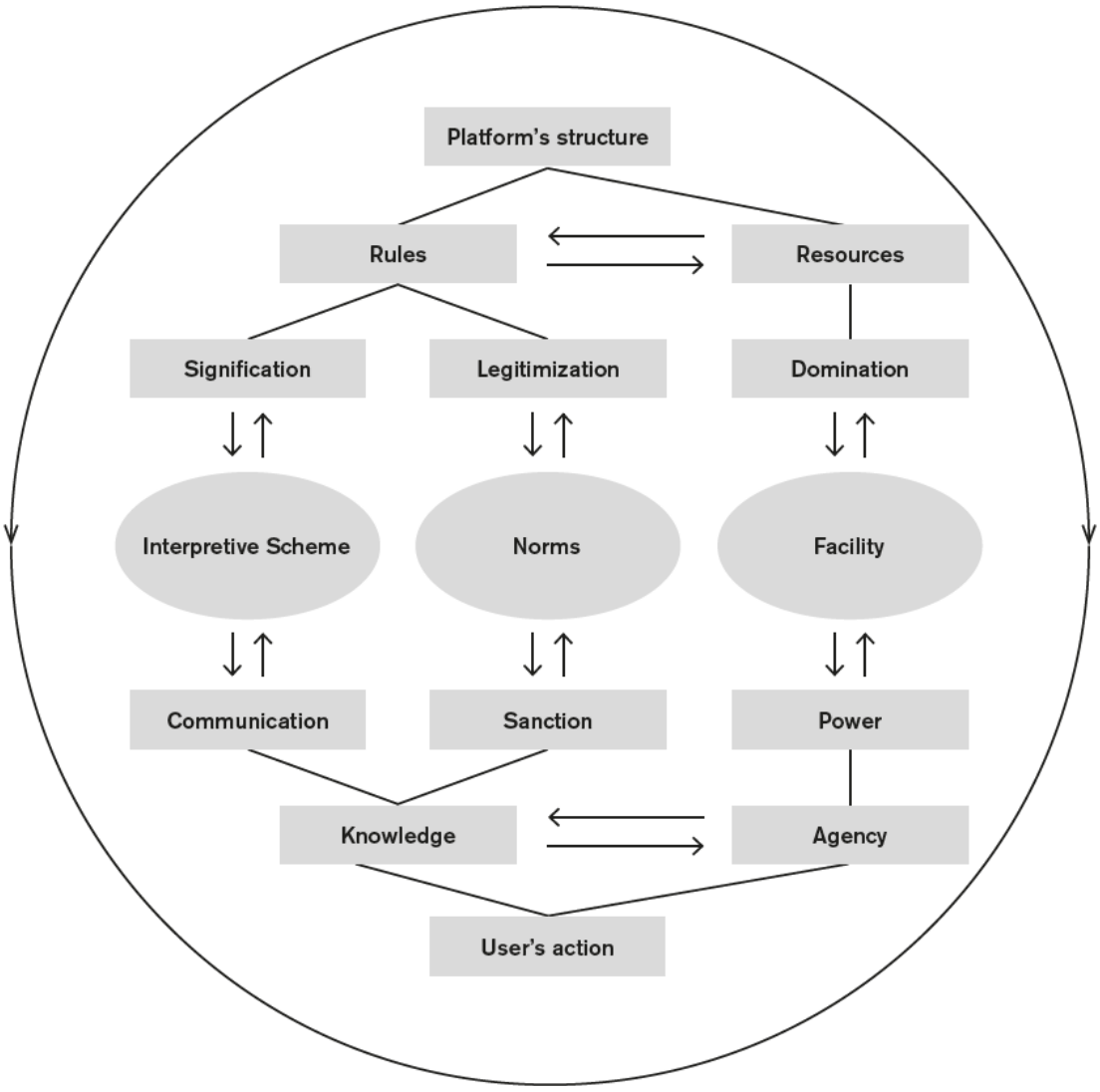

Figure 1. The Elements of the Structuration of the Networked Public Sphere (adapted from Braun, 2002, p. 97 and Giddens, 1984, p. 29)

Two examples demonstrate how structuration can lead to different social practices on platforms: First, Wikipedia offers the largest online encyclopedia only thanks to the continuous creation and revisions via individuals' interactions with its structure (i.e. interpretive scheme and facility) (e.g., Shaw & Hargittai, 2018). Also, these individuals follow the platform's ToS and create content, which is discussed by and accessible to others for free (i.e. norms). These social practices enable Wikipedia to serve as an online encyclopedia. Second, the social network Gab was created as a platform with the stated goal of, above all, protecting free speech (i.e. norms) (Gab, 2019). Gab attracted especially alt-right supporters, conspiracy theorists, and trolls, who create and distribute content (i.e. interpretive scheme and facility) (Zannettou et al., 2018). Thus, it serves as a platform for users who have been banned from other platforms, of which some even face federal charges for racist posts, which led to the public criticism that Gab would fuel radicalization (Timberg, Harwell, Dwoskin, & Brown, 2018). That is, which social practices emerge depends on the interactions between a platform's structures and users' actions, i.e. structuration.

Since structuration is highly dynamic and reciprocal, it can have unintended consequences that spark debates to change a platform's structures or users' behaviors. For instance, in 2008, Facebook removed pictures showing women breastfeeding their children, which led to protests and public discussions on and beyond the platform; this growing public pressure forced it to change its rules in 2014 (Facebook, 2019a; Gillespie, 2018). It is not only users who initiate changes to the platform's structure; the structure is also shaped to nudge users' behaviors (cf. Bucher & Helmond, 2018; Thaler & Sunstein, 2009). While platform engineers change the calculations of their algorithms, for instance to increase or decrease the visibility of news outlets' posts (Levy, Newman, Fletcher, Kalogeropoulos, & Nielsen, 2018), they also adjust visible features. For instance, Twitter's 'favorite' button (in the shape of a star) was changed to a 'like' button

(in the shape of a heart) in November 2015. This was intended to make the button's function easier to understand for new users (Kumar, 2015). However, long-time Twitter users reacted with disbelief and sadness (Bucher & Helmond, 2018). That is, while the favorite button was used as a bookmark symbol and others used it as to say, "I agree," the like button was seen as too generic (Bucher & Helmond, 2018). Thus, structuration can have unintended consequences that may change user behaviors or a platform's structures; it seeks to facilitate new social practices.

Thus, the structuration of the networked public sphere refers to the dynamic and reciprocal process between platform structures and user actions. Social practices emerge in the structuration of the networked public sphere and become visible in three modalities (interpretive scheme, facility, and norms). Unintended consequences by emerging social practices can lead to changes initiated by users' calls for adjusting platform structures, but also by platform structures' adjustments to change users' behaviors.

4 Public Attention as Driver of the Structuration

While the theory of structuration focuses on the modalities to explain social practices (Phipps, 2001), it does not postulate what fuels structuration. I will now argue that public attention is the main driver of those who offer platform structures, those who use a platform, and – subsequently – the structuration of the networked public sphere.

Webster (2011) has defined public attention as "the extent to which multiple individuals (i.e. agents) are exposed to cultural products across space and/or time" (p. 45). Cultural products can be posts on social media platforms, news stories, video clips, or websites; exposure points to an individual's contact with such a product – whether incidental or intended, long or short, following a reaction or not – across space and time, indicating loosely connected or organized audiences and the single or repeated use of a product.

Since primarily commercial platforms offer structures for the constitution of the networked public sphere, gaining public attention is crucial for their business; they compete for the attention of individuals with other media companies such as broadcasting stations or newspapers (for an overview, see Webster, 2011). The platforms seek to provide individuals with information that lead them to spend time on the platform, which enables platforms to show their users paid adverts, similar to how the traditional media want individuals watch their television program or read their newspaper (Gillespie, 2018; van Dijck, 2013; Webster, 2011). Thus, public attention is necessary to keep the platforms online.

While there are various motivations for people to join platforms, for instance, the need to belong (Nadkarni & Hofmann, 2012) or the need to track live news (Kwak et al., 2010), people also join for the purpose of self-representation (Nadkarni & Hofmann, 2012) and attention-seeking (Vaterlaus, Patten, Roche, & Young, 2015; Wohn & Na, 2011). Especially in the political networked public sphere, gaining attention for oneself

and one's arguments is needed if one is to exert social influence (e.g., Gerhards, 1994; Webster, 2011) and should therefore be a main reason for political actors to use a platform.

The double need for attention goes hand in hand with structuration of the networked public sphere: Since platforms do not create the content on them, they rely on their users' actions and offer their users opportunities to attract public attention for their posts in return (boyd & Ellison, 2007). However, not everyone attracts the same amount of public attention. How much attention a user attracts depends on the interplays of users' actions and platform structures.

Users' actions show to whom or to which posts they want to pay attention, via two features of platforms (Keller & Kleinen-von Königslöw, 2018a): Users can connect with one another and can thereby attract followers, friends, or fans (i.e. a followership). Followership is the first audience of a user post. The larger their followership, the more public attention a user is likely to attract (Karlsen & Enjolras, 2016; Keller & Kleinen-von Königslöw, 2018a). Also, platforms enable followers to react to a post on different levels: Low-threshold reactions such as a like on Facebook or Twitter show positive acknowledgement of a post, a share on Facebook, or a retweet on Twitter redistribute a post to a network; high-threshold reactions include a comment or a reply, which allow users to respond in their own words (Keller, under review; Larsson, 2017a).[8] Each of these reactions indicate that a user paid attention to a post and that they shared it to their

[8] While each reaction can be counted as an indicator of attention, the interpretation of what a user intended to express with a certain reaction differs from person to person and situation to situation, as shown by Porten-Chée, Haßler, Jost, Eilders, and Maurer (2018). For instance, the like button on Facebook can be used to express emotional expressions such as excitement, agreement, or compassion, according to Gerlitz and Helmond (2013), but also less emotional ones such as to present oneself as responsible, to show others that one has read the article, according to Gao (2016), or simply as part of a routinized behavior, according to Brandtzaeg and Haugstveit (2014). Similarly, Twitter users gave 25 different answers to the question why they favorited (now liked) a tweet, according to Meier, Elsweiler, and Wilson (2014): the answers ranged from author-centered reasons such as it was from a family member or a celebrity, to content-focused reasons such as when a tweet reflects one's opinion, to the intention of a first step to engage with someone, to simply a way to bookmark a tweet, or to enter a competition and possibly win a prize.

network. Thus, users' actions decide which posts gain (more) attention in the networked public sphere.

However, it is not only users who decide which posts attract public attention; platform structures and especially their algorithms do, too. They use hundreds of indicators based on users' actions to decide whether to show a certain articles to someone and, if so, in what order (Oremus, 2016; Twitter, 2017): For instance, they rely on a post's content, such as whether it is a picture or a video, the connection between the sender and the recipient of a post, such as how often they chat, the recipient's past behaviors, including whether they have often reacted to similar posts in the past (Bucher, 2012; Oremus, 2016; Twitter, 2017). The weighting of the indicators and their calculation about whether or not to further redistribute a post enables an algorithm to influence the amount of public attention a user or a post attracts. A platform's algorithm does not distribute posts equally, but in a distribution resembling a power-law function, i.e. it redistributes posts that have already gained much attention rather than posts that did not.[9] Such a distribution has been detected in the networked public sphere[10]: very few politicians receive the majority of visits, fans, followers, and views on their websites, Facebook

[9] It may be that a platform's algorithm infers a post's public relevance from the number of reactions it has already received and decides to redistribute it further. This may follow the same logic of user actions or may even be determined by users actions to an extent: since the number of one's follower and the reactions to one's posts are public, they serve as cues for other users, as shown by Porten-Chée et al. (2018). That is, if a post has received many reactions, users infer that it must be worth reading (the so-called bandwagon effect), according to Sundar and Nass (2001). In this line, for example, Messing and Westwood (2014) showed that many reactions to an article (i.e. random numbers from max. 1,000 recommendations vs. a random number over 10,000) trumped the ideologically misaligned source as relevance cue and, therefore, could reduce political polarization. However, the effect sizes varies along users' individual personalities, as shown by Margetts, John, and Hale (2016), such as the need for orientation, according to Matthes (2005), the information processing type, according to Lee and Jang (2010), or the need for optimal distinctness, according to Brewer (1991), and does not necessarily change users' perceptions of issues according to Peter, Rossmann, and Keyling (2014). Thus, a platform's algorithm may reflect users' focus on already popular posts and may therefore redistribute popular posts further than unpopular ones.

[10] Such a distribution is in line with the overall structure of the World Wide Web as a scale-free network, according to Barabási and Albert (1999) and Adamic and Huberman (2000). Further, Adamic (2009) found this distribution in viral marketing and social persuasion efforts, Yim (2003) in audience concentration for magazines, cable television networks, radio networks, and broadcast television networks, and Ding et al. (2011) in the attention for YouTube uploaders.

pages, Twitter accounts, and YouTube pages, while the majority of politicians receive little attention (Benkler et al., 2015; Keller, under review; Larsson, 2017b; Nielsen & Vaccari, 2013). Thus, although platform algorithms are 'black boxes' and are informed by users' actions, they further redistribute already popular posts rather than unpopular ones.

Thus, the goal of attracting maximum attention guides adjustments of platform structures (e.g., their algorithms) and user actions. Although user actions determine the amount of public attention a user or a post attracts and inform platform algorithms, platform algorithms also act – they are programmed to prioritize certain posts. This leads to a power-law distribution of attention for users and posts. Thus, given the double need for public attention, the structuration of the networked public sphere should reflect social practices that improve the odds of attracting public attention.

5 Politicians' Social Practices to Attract Attention

To empirically analyze such a structuration, the researcher must create a break in the process (Phipps, 2001) – "intellectually freezes the ongoing course of structuration" (Cohen, 1989, p. 146), and must focus on emerging social practices. I focus on politicians' social practices on Facebook and Twitter in order to empirically investigate part of the structuration of the networked public sphere.

Politicians are one of many groups of individuals that form part of and seek to attract attention in the networked public sphere (Benkler et al., 2015; Jarren & Donges, 2011; Keller, under review). Although they can use these platforms to determine what society considers to be politically relevant (Jungherr, 2014), or to differentiate their political programs from political competitors (Gerhards, 1994), their primary goal is to gain attention in order to persuade citizens to vote for them (Gerhards, 1994). Politicians have adopted two platforms in particular to attract public attention: Facebook and Twitter.

Since the successful campaign of the 44th U.S. president, Barack Obama, also known as the "social media president" (Katz, Barris, & Jain, 2013), politicians from around the world have followed his lead and have joined Facebook: For instance, already in New Zealand's 2011 national elections, 77% of members of parliament (MPs) used Facebook as a campaign tool (Ross, Fountaine, & Comrie, 2015); in 2011, each of the seven parties' two top candidates in five large and medium-sized Norwegian municipalities were active on Facebook (Enli & Skogerbø, 2013); in the 'routine phase' of 2015 in Switzerland, 24% of the candidates used Facebook pages (Keller & Kleinen-von Königslöw, 2018a); in Norway and Sweden in 2013, 24% and 19% respectively curated Facebook pages (Larsson & Kalsnes, 2014).

Politicians have adopted Twitter, too (for an overview, see Davis et al., 2017). For instance, one-third of all parties and 13% of all party leaders represented in Canada's parliament already adopted Twitter in 2009 (Small, 2010). In Switzerland, the Twitter

adoption rate among MPs rose steadily to 44% in 2015 (Keller & Kleinen-von Königslöw, 2018a; Klinger, 2013; Rauchfleisch & Metag, 2016). In 2014, 351 candidates used a Twitter account to win one of the 222 seats in Australia's parliament (Bruns & Moon, 2018). In Norway and Sweden in 2014, 57% and 58% MPs respectively had a Twitter account (Larsson & Kalsnes, 2014). In the Netherlands, in 2016, 96% of all MPs had a Twitter account (Spierings, Jacobs, & Linders, 2018).

Politicians' high Facebook and Twitter adoption rates indicate that the structures of these two platforms may serve their goal of attracting public attention. However, since public attention is distributed unequally in the networked public sphere, certain social practices may establish that increase the odds of attracting maximum public attention. Thus, I ask: *Which social practices attract public attention in the networked public sphere?*

Social practices have three modalities: the interpretive scheme, facility, and norms. Although the three modalities are linked to produce social practices, they can be analyzed separately (DeSanctis & Poole, 1994; Orlikowski, 1992; Rosenbaum & Shachaf, 2010; Wyss, 2016). The three modalities' foci shed light on different angles to answer the overall research question (for an overview, see Figure 2).

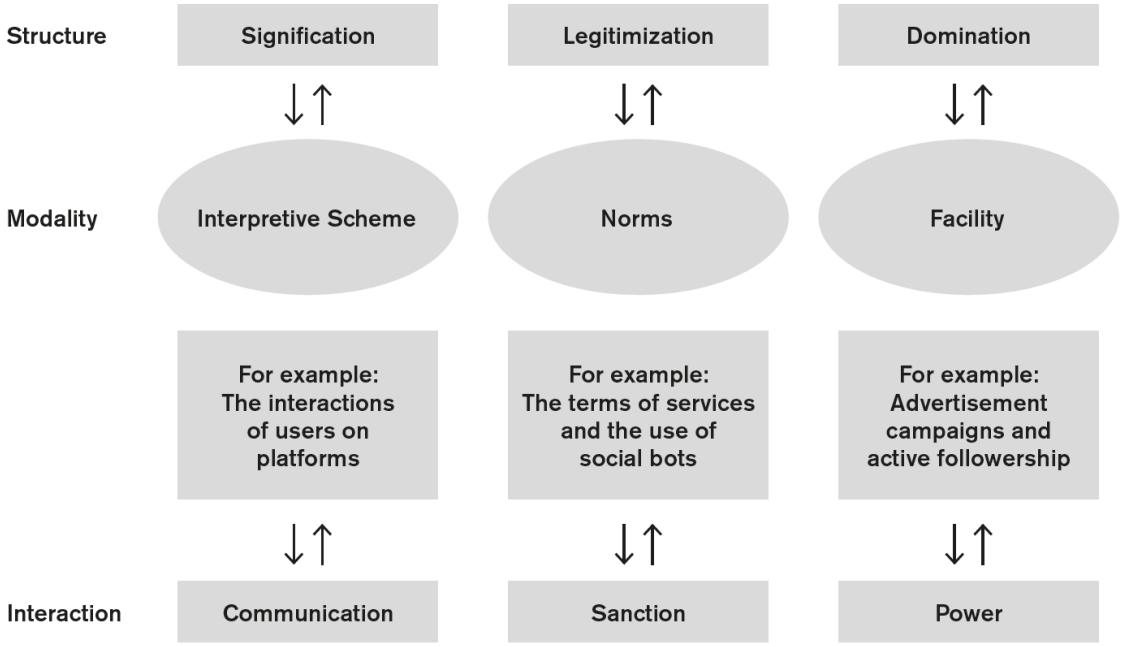

Figure 2. The Three Modalities to Analyze Politicians' Social Practices (adapted from Giddens, 1984, p. 29)

5.1 Interpretive Scheme: Politicians' Interpretations of Platforms

The first modality, the interpretive scheme, focuses on the interactions between a structure's signification and politicians' communication. Thus, it points to how politicians interpret a platform's meaning, given its structural features, and is reflected in their communication.

In interviews, politicians state more nuanced reasons for having adopted Facebook or Twitter, thereby interpreting the platforms' meanings, rather than focusing on their overall goal of gaining attention so as to win voters. Their reasons can be grouped into two categories. First, they want to stay close to people – for instance, to talk to citizens directly, to be reachable for suggestions from citizens, and to interact with them (Brändli & Wassmer, 2014; Jungherr, 2014; Larsson & Skogerbø, 2018). Second, they use the platforms for self-representation; for instance, they want to be seen to be modern and to

report on their political achievements (Anstead & O'Loughlin, 2015; Jungherr, 2014). Given Facebook's and Twitter's structures, politicians are enabled to achieve these intended activities.

However, the reasons for using these platforms may not be reflected in their activities, because their day-to-day actions do not necessarily reflect their motivations. Especially if politicians' communication aims for maximum attention, they may behave differently, in two ways. Instead of staying close to citizens and interacting with them, they may primarily address opinion leaders such as journalists or other relevant actors in a network (Graham, Broersma, Hazelhoff, & van 't Haar, 2013; Spierings et al., 2018). For instance, politicians' communication can address a media organization or can refer to their reporting, which may appear in the next day's news coverage (Metag & Rauchfleisch, 2017; Parmelee, 2014). They may also adapt their communication style to the logic of the networked public sphere rather than that of the traditional media. Instead of objective reporting, their communication should trigger reactions such as likes, which spread their posts to a secondary audience (Bene, 2017; Heiss et al., 2018; Hemsley, 2019; Jacobs & Spierings, 2016). To assess how politicians interpret platform structures' meanings, I ask:

RQ1a: Who do politicians talk and listen to so as to attract public attention?

RQ1b: Which communication styles do politicians use to attract public attention?

5.2 Facility: Politicians' Uses of Resources

The second modality, facility, focuses on the interplays between the ways to dominate presented by structures and politicians' authoritative and allocative resources (i.e. power). Thus, facility focuses on how politicians use platform structures to dominate attention in the networked public sphere.

Since users decide which politicians they follow and which posts they react to, the distribution of attention in the networked public sphere may be a democratic decision (the so-called equalization or democratization thesis) (see Dahlberg, 1998; Keller & Kleinen-von Königslöw, in press; Larsson & Kalsnes, 2014; Rheingold, 2000; Samuel-Azran et al., 2015). However, politicians do not enter these platforms as unknown actors; those who are already well known owing to for instance their long-term incumbency in parliament or because they are often covered in the traditional media may find a larger followership online than those who are less often covered in the media and have fewer financial resources (the so-called normalization thesis) (Margolis & Resnick, 2000; Williams & Gulati, 2013). Further, politicians' financial resources may allow them to buy adverts, which are shown to a specific subset of users on Facebook or Twitter (Young Kim et al., 2018; Papakyriakopoulos et al., 2018). That is, politicians' allocative resources may influence how much attention they attract online.

However, authoritative resources may also increase the odds of attracting maximum attention. Politicians may benefit if they can attract a large followership (e.g., fans or followers) to which they can broadcast their messages. If their followers react to a post with a like or a retweet, the message spreads even further to a secondary audience (Jacobs & Spierings, 2016) and even may go viral (Klinger & Svensson, 2015; Nahon & Hemsley, 2014; Puschmann & Peters, 2014). Thus, politicians may not need to spend their allocative resources if they can attract an active followership, which serves politicians as an authoritative resource. This raises the question:

RQ2: Which politicians' authoritative and allocative resources lead to more public attention?

5.3 Norms: Politicians' Compliance with Platforms' ToS

The third modality, norms, focuses on the interactions between structures' legitimization and politicians' sanctioning. Thus, norms focus on how politicians comply with platforms' ToS to achieve their goal of attracting public attention.

Facebook and Twitter's ToS demand authenticity of its users, including for instance the use of one's real name (Facebook, 2019b; Twitter, 2019); however, they are reluctant to enforce their ToS (e.g., Gillespie, 2018).[11] Thus, politicians may exploit grey areas in platforms' ToS or may even violate them in order to attract public attention.

Since platforms' algorithms rely on the number of reactions as indicators of the popularity of a user or a post (Bucher, 2012; Twitter, 2017), and further redistribute posts that have already gained more traction than others, politicians may artificially increase their popularity or that of their posts via social bots so as to attract genuine public attention. Social bots are (semi-)automated computer programs that mimic humans and human behaviors (e.g., Ferrara, Varol, Davis, Menczer, & Flammini, 2016; Wagner, Mitter, Körner, & Strohmaier, 2012; Yang et al., 2019). Bots have been detected to artificially increase the popularity of politicians and their posts in debates in the networked public sphere (for an overview, see Woolley & Howard, 2019). For instance, they have been detected to support the 'leave' side in the Brexit debate (Bastos & Mercea, 2019; Howard & Kollanyi, 2016) and to have increased the popularity of the Republican candidate in the 2016 U.S. presidential election (Bessi & Ferrara, 2016; Kollanyi, Howard, & Woolley, 2016; Woolley & Howard, 2016). Whether politicians know about their artificial popularity, or even took part in the implementation of social bots, remains

[11] First, platforms would require spending resources to enforce their ToS by for instance hiring moderators to screen the content on a platform (e.g., Gillespie, 2018). Second, platforms position themselves as neutral intermediaries under the Safe Harbor provisions and are not liable for copyright infringement if they follow the requirements, such as not directly profiting from the infringing material and take down the infringing material immediately, because they do not create the content on their platforms, according to Buchwald (2017) and Helberger (2018).

unknown. However, given social bots' prevalence in political debates in the networked public sphere, politicians may use social bots to trick platforms' algorithms, which should further redistribute posts and should thereby attract (genuine) public attention. Thus, I ask:

RQ3: How prevalent are social bots in politicians' networks?

6 Results from Four Empirical Studies

I have conducted four empirical studies to answer these four questions: Studies 1 and 2 focus on the interpretive scheme and thus on politicians' interpretations of a platform's meaning: While Keller (under review) shed light on who politicians talk and listen to, Keller and Kleinen-von Königslöw (2018b) analyzed which communication styles politicians use and which of them have increased the odds of attracting more public attention than other styles. Study 3 focuses on facility and, thus, how politicians use their resources: Keller and Kleinen-von Königslöw (2018a) investigated which authoritative and allocative resources of politicians increase public attention. Study 4 focuses on norms, shedding light on whether political parties use social bots to artificially increase their popularity and to attract genuine public attention (Keller & Klinger, 2019). I will now briefly address the four studies' primary results and will then compare them to other studies.

6.1 Interpretive Scheme: Politicians' Communication Behaviors

Platforms enable politicians to stay close to the public, interact with lay citizens, and post status updates about their achievements. Although politicians' motivations for interacting with lay citizens and for self-representation match a platform's affordances, their communication behaviors paint a different picture (Keller, under review; Keller & Kleinen-von Königslöw, 2018b).

On the one hand, politicians primarily address other politicians instead of interacting with lay citizens, moving their discussions from parliament to the 'modern' online sphere (Keller, under review). Also, they target journalists rather than lay citizens, since they may hope to influence the media's reporting and to increase their own visibility beyond a platform. On the other hand, a pseudo-discursive communication style (which

satisfies the expectation for the interactive use of a platform) is predominantly used (Keller & Kleinen-von Königslöw, 2018b); however, this style does not serve the purpose of attracting maximum attention. While on Facebook, an entertaining, mobilizing, and emotional style increases politicians' visibility, only an emotional style serves to achieve this goal on Twitter.

Thus, politicians' communication behaviors reflect a desire to look 'modern' and move discussions (primarily among politicians) online. Although they use a pseudo-discursive communication style, their goal of reaching maximum attention in the networked public sphere is either served by targeting highly influential users such as journalists in their communication or via an emotional, reaction-triggering communication style.

6.2 Facility: With Which Resources Politicians Dominate Attention

Platforms provide opportunities for politicians with fewer resources to overcome their attention deficit in the traditional media. However, politicians who already dominate offline attention may use their advantaged position to also dominate online.

Keller and Kleinen-von Königslöw (2018a) found that media coverage in traditional media corresponds to the attention politicians receive on Facebook and Twitter; yet, other resources did not help them to attract attention online. For instance, holding a key political position and having attracted a large electorate led to fewer reactions on Twitter, and more financial resources led to a smaller Facebook followership. However, the strongest predictor for triggering reactions is to attract a large Facebook followership.

That is, advantages in resources do not *per se* translate into public attention on Facebook and Twitter; they can even lower the odds of gaining attention and differ by

platform. The most beneficial resource is an active followership. Thus, the specificities of platforms must be considered, and an active followership is required to dominate attention in the networked public sphere.

6.3 Norms: Increased Attention by Tricking the System

Political parties may benefit from an artificially increased followership, because this makes them look more popular than they really are and can let them attract genuine public attention. However, platforms' legitimization (i.e. ToS) prohibit the use of social bots and threaten such behavior with sanctions.

Keller and Klinger (2019) analyzed the followership of the seven parties represented in Germany's national parliament, and found that the prevalence of social bots increased from 7% during the non-election period to almost 10% in the campaign phase of the 2017 federal election. Although these bots primarily did not tweet about German politics, they actively entered political discourses regarding other countries such as France, the U.S., and Nigeria. Thus, they are used to bloat popularity by (inactively) following political actors and messages, and by (actively) (re)tweeting in political discourses around the globe. Their increased presence also indicates how platforms neglect the enforcement of their ToS by failing to remove social bots.

Although platforms' ToS strictly forbid the manipulative use of social bots to artificially increase one's popularity, they fail to fully enforce their ToS. Thus, politicians may benefit from social bots to attract genuine public attention in the networked public sphere.

7 Discussion: Politicians' Social Practices to Attract Attention

The four empirical analyses point only to a certain group of political actors (i.e. Switzerland's MPs and Germany's parties) at a certain time (e.g., the 2015 Swiss national election) with a focus on a single modality. Thus, these four studies should be compared to similar studies that focus on one of the three modalities, and because the three modalities interrelate, their interdependence must be considered. I link the reluctance of politicians to debate with citizens to politicians' communication styles, to politicians' uses of allocative and authoritative resources, and to the prevalence of social bots in politicians' followership to other empirical findings in order to ascertain politicians' social practices to attract public attention in the networked public sphere.

7.1 Selected Interactions and Communication Styles

Given the abundance of the posts politicians receive and their lack of resources for instance to hire a professional social media team (Giacobbo, 2018; Keller, under review; Klinger & Russmann, 2017), politicians cannot engage in discussions with everyone in the networked public sphere. Also, other users do not expect politicians to reply to them, and politicians know that they do not have to reply to everyone (Tromble, 2018). Despite the fact that platforms' signification and legitimization support interactions, the normative expectation that politicians should continually interact with lay citizens is neither demanded by lay citizens; further, given their limited resources, these cannot be met in the networked public sphere.

Additionally, politicians consider discussions with unknown actors to be risky: they fear losing control of the communication situation (Kalsnes, 2016; Stromer-Galley, 2000). Thus, it is safer for them to debate with people they are familiar with, such as other politicians and journalists who likely discuss in a serious way, because they represent

another party or a media outlet (Keller, under review; Spierings et al., 2018). Discussing with journalists, politicians, and other highly influential persons also offer opportunities for politicians to reach a larger secondary audience. They may increase their visibility in a discussion with another politician, because this other politician's followership may also encounter this interaction. When discussing with journalists, politicians may benefit from traditional media coverage and may even reach a secondary audience beyond the platform (Metag & Rauchfleisch, 2017; Parmelee, 2014). Thus, politicians select who to interact with, to increase their chances to attract public attention in or beyond the networked public sphere.

However, politicians may turn their attention more to lay citizens during election campaign periods than non-election periods. For instance, UK MPs replied most often to lay citizens during the 2013 campaign (Graham et al., 2013). Such interactions can strengthen the connection between the two and can yield substantial benefits, such as an increased intention to vote for this politician, even if someone only observes how a politician interacts with someone (Lee & Shin, 2012; Tromble, 2018). That is, in campaign periods, politicians' may discuss not only in highly influential accounts, but also take more time for lay citizens.

While interactions are a specific mode of communication in the networked public sphere, the vast majority of politicians' communication remains one-sided (Jackson & Lilleker, 2009; Jungherr, 2016; Keller & Kleinen-von Königslöw, 2018b; Kreiss, 2012; Stromer-Galley, 2014), which serves their purpose of self-representation and gaining public attention. By broadcasting, they can represent themselves in the best light, look 'modern' by communicating via social media platforms, and, at the same time, remain reachable and close to the public because they allow feedback to their messages. Such feedback serves as a proxy for public opinion (Jungherr, 2014). They may find positive or negative evaluations of a political statement in comments, a great number of likes

showing support for it, or large number of shares, indicating that this message is intended for a secondary audience.

Given platforms' algorithmic decisions to show posts that have already attracted much attention (i.e. reactions), not only shared or retweeted content ends up in the newsfeeds of a secondary audience, but also posts that have been liked or replied to. That is, every reaction increases attention. Thus, politicians have adapted their communication styles to increase their number of reactions. While these styles vary across platforms (Keller & Kleinen-von Königslöw, 2018b), the one style that was found to work across platforms, countries, and over time is the emotional one (Bene, 2017; Dobele, Lindgreen, Beverland, Vanhamme, & van Wijk, 2007; Heiss et al., 2018; Keller & Kleinen-von Königslöw, 2018b; Wirz, 2018). Thus, politicians possibly change their communication behavior from a (pseudo-)discursive style to an emotional one if they seek to attract maximum public attention.

Thus, politicians are not unaware of interactions' potential; their interactions simply reflect their strategic decision to maximize their chances to gain public attention in resource-efficient ways. That is, politicians' emerging social practice is to specifically select who they interact with and to possibly adapt their communication style so as to increase the odds of attracting maximum attention.

7.2 Power to the Few Politicians who Attract the Most Users

Although all politicians begin with a followership of zero users and posts with zero reactions, they do not enter the networked public sphere on equal footing. Some join the platform with a beneficial background (e.g., popular politicians) or with more financial resources than others. However, only some resources help them to attract public attention in the networked public sphere.

Politicians benefit from their popularity, generated by media coverage about them and, in some cases, benefit from more financial resources to attract public attention in the networked public sphere (Keller & Kleinen-von Königslöw, in press, 2018a; Williams & Gulati, 2013). Since platforms follow a commercial logic (e.g., van Dijck, 2013), they offer politicians paid adverts that are shown to specific groups of users (Young Kim et al., 2018; Papakyriakopoulos et al., 2018). Platform owners also cooperate with politicians to determine which functionalities politicians would need to expand their uses of a platform (for an overview, see Kreiss & McGregor, 2018). However, bought public attention is less persuasive than personal recommendations via reactions and may even be considered annoying or intrusive on Facebook (Beauchamp, 2012; Harris & Dennis, 2011). Thus, politicians may use their financial resources to advertise their posts and increase their visibility, but still require other users to spread their posts genuinely so as to attract maximum public attention.

Mobilizing messages, such as politicians asking their followers to share their posts (Keller & Kleinen-von Königslöw, 2018b), or get-out-the-vote messages, must fall on fertile ground in order for a message to attract public attention.[12] Thus, an active followership that spreads their messages through the network is the key resource (Heiss et al., 2018; Hemsley, 2019; Keller & Kleinen-von Königslöw, 2018a).[13] Politicians' followers' reactions signal a post's public relevance to the platform's algorithms, which

[12] Margetts et al. (2016) showed that user decisions whether to react to a post varies along their personality: While initially, extroverts and those with high internal locus of control usually react to a post first, agreeable people tend to follow later. Thus, politicians benefit if they can attract users with differing personalities to start what Sundar and Nass (2001) called a "bandwagon effect" or what Nahon and Hemsley (2014) labeled as a post going viral.

[13] Although Keller and Kleinen-von Königslöw (2018a) indicated that an active followership was not necessary to reach many reactions on Twitter (because there was no positive relationship between followership and reactions), this result is likely outdated. Twitter (2017) has implemented an algorithmically moderated timeline after the authors' data collection. Thus, the results may only be reproduced with users who opted back to the chronological timeline. Also, it is thus likely that the number of Twitter followers also explains the number of reactions if Twitter's algorithm ranks tweets with similar indicators as Facebook's algorithm does.

redistribute already popular posts even further, leading to a power-law distribution of attention: while most politicians and posts receive little attention, only a few attract the most attention (Benkler et al., 2015; Keller, under review; Keller & Kleinen-von Königslöw, 2018a, 2018b; Larsson, 2017b; Nielsen & Vaccari, 2013). Thus, the authoritative resource, an active digital followership, remains necessary for politicians to reach the top of the distribution of attention.

That is, despite the fresh start for every politician who enters the networked public sphere, their personal background and spending of allocative resources may increase the odds of attracting public attention. However, politicians' social practices require aiming for genuine reactions from an active digital followership (as an authoritative resource) if they are to dominate public attention in the networked public sphere.

7.3 The Benefits to Politicians from Tricking the System

If politicians cannot persuade users to follow them, and their communication triggers no reactions, they may choose to violate platforms' ToS in order to attract public attention in the networked public sphere.

While platforms' ToS state that violation would lead to the deletion of posts or even exclusion from the platform (Facebook, 2019c; Twitter, 2019), platforms very seldom enforce their ToS. It has been shown that they do not have the capacity to remove social bots (e.g., Woolley & Howard, 2019) and are reluctant to spend resources on manual content moderation (Gillespie, 2018). Commercial logic may hinder them from enforcing their ToS: they benefit from artificial users and artificially created content because these increase the number of users and actions – two key figures for them, which enable them to increase their revenue.

Thus, politicians may benefit from platforms' lack of policing and may violate ToS in order to increase their own visibility. The prevalence of social bots on Twitter for instance has been estimated at between 9% to 15% (Davis et al., 2016). Although it is unclear who has employed them, they have entered national political discourses around the world (Woolley & Howard, 2019): while bots were active in the 2016 U.S. presidential election (Bessi & Ferrara, 2016; Kollanyi et al., 2016; Woolley & Howard, 2016), in the Brexit debate (Bastos & Mercea, 2019; Howard & Kollanyi, 2016), in France's 2017 presidential election (Ferrara, 2017), and in Germany's 2017 federal election (Keller & Klinger, 2019; Neudert, Kollanyi, & Howard, 2017), their activities range from distributing non-political content to clearly favoring one side of a debate: In Germany's 2017 federal election, for instance, although 10% of traffic were bot accounts following the seven parties and thus artificially increased these parties' popularity, almost none of them were active, and the active ones did not interfere in the country's election campaign – active bots primarily spread promotional tweets (Keller & Klinger, 2019). However, during the 2016 U.S. presidential election, 400,000 bots spreading roughly 3.8 million tweets were identified and clearly favored one side; those linked to Trump were mostly tweeting positively about Trump, while those linked to Clinton were tweeting equally positively and negatively about her (Bessi & Ferrara, 2016). Although it is unclear who has employed social bots, and not all social bots engage politically, the platforms' lack of policing leads to social bots favoring some politicians over others.

Social bots have also been linked to the distribution of disinformation (Lazer et al., 2018; Shao et al., 2018). Although disinformation is not new, the amount of disinformation has grown in the past years (Vargo, Guo, & Amazeen, 2017). Besides such a message's disinformational content, these messages tend to be formulated in a highly emotional style, which triggers users to react to them (e.g., Dobele et al., 2007; Keller & Kleinen-von Königslöw, 2018b). Overall, false stories such as disinformation spread

faster and further than other content (Vosoughi, Roy, & Aral, 2018). Although politicians may not want to be directly linked to the spread of disinformation, it is claimed that politicians or governments are the sources of this disinformation, especially in English-speaking countries (Humprecht, 2018). This may affect election campaigns. For instance, in the 2016 U.S. presidential election, 27% of U.S. citizens visited one or more websites with disinformational content (Guess, Nyhan, & Reifler, 2018), and most of the 'news' on such websites favored Trump (Allcott & Gentzkow, 2017). Thus, bots not only artificially increased the popularity of some (messages of) politicians, they may also be employed to spread disinformation, to which users likely react, thereby increasing public attention.

Given the need for public attention on these platforms and the lack of resources, bots may be a cheap way (Kollanyi, 2016) to artificially increase a politician's popularity, to artificially increase support for their posts, or to negatively campaign against or even spread disinformation to undermine an opponent. Thus, the rapid increases in the number of reactions to politicians' messages by bots have public relevance, set off a bandwagon effect, and human users may also spread the (artificially) popular messages across their networks. Although platforms' legitimization is violated, platforms neither remove all social bots, nor sanction those who benefit from them. Thus, politicians' social practices may include the use of social bots to artificially increase public attention in the networked public sphere.

8 Conclusion

In this synopsis, I have sought to complement the networked public sphere with Giddens's (1984) theory of structuration. I have empirically applied the theoretical framework to study politicians' social practices in the networked public sphere. The main argument is that both politicians' actions and platform structures influence one another and that social practices emerge in their interplays. Since social practices depend on three modalities (interpretive scheme, facility, and norms), in the analysis, I have connected three research strands: politicians' communication behaviors, how they use of their authoritative and allocative resources, and compliance with platforms' norms. Given politicians' goal of attracting maximum public attention, their social practices revealed their strategic targeting of highly influential accounts (e.g., other politicians or journalists), the likely use of an emotional communication style, which triggers reactions, the need for allocative resources, manifest in an active digital followership, and the possible use of social bots to artificially increase politicians' popularity.

8.1 Contributions to Communication and Media Research

In this synopsis, I have contributed to future research into the networked public sphere – and especially on politicians' social practices in the networked public sphere – theoretically, empirically, methodologically, and with implications for society and possible regulations.

Expanding the networked public sphere with Giddens's (1984) theory of structuration offers a vocabulary to explain how different moving targets (i.e. users' actions and adjusting platforms' structures) shape one another. This dynamic and reciprocal process produces social practices that account for the interplays between platform users' actions and platforms' structures. Thus, I have responded to the call for a

platform-sensitive approach (Bucher & Helmond, 2018), have overcome the dichotomy of focusing on either platform structures or user behaviors, and have added an explanatory perspective to the descriptive models of the networked public sphere.

Given politicians' goal of attracting maximum attention, certain social practices have emerged. I have empirically investigated social practices by focusing on the interpretive scheme, facility, and norms. Thus, I have linked three major research areas: the interactive potential of platforms and how politicians make use of them in their communication, the democratization potential of platforms and which politicians' resources help to dominate attention, and how platforms' ToS do or do not hinder the manipulative use of social bots to distort the distribution of attention. The findings reflect the strategic use of platforms to address other influential accounts, indicating the reaction-triggering use of an emotional communication style, the need for an active digital followership, and the use of social bots to artificially increase politicians' popularity.

Since the theory of structuration does not demand a specific method (Giddens, 1984), and possibly cannot be analyzed by the use of a single method, various methods have been used to analyze social practices: qualitative network analysis, quantitative content analysis, and computational methods such as an automated content analysis and bot detection tools. With the availability of digital behavioral data (i.e. trace data), new methods and approaches are needed, but also allow one to trace the de facto behaviors of users on platforms (González-Bailón, 2017), shedding light on how social practices are emerging in the structuration of the networked public sphere.

Given the current prevalence of disinformation (e.g., Benkler, Faris, & Roberts, 2018), social bots (e.g., Woolley & Howard, 2019), and ad campaigns that that indicate the violation of election laws (e.g., Young Kim et al., 2018), politicians may be acting on the edges of law and platforms' ToS to reach their goal of attracting public attention. Countering these efforts requires regulations from inside and outside the platforms: First,

platforms could focus on oversight and could moderate the content on their sites (Gillespie, 2018). Further, they could increase the obstacles to employing social bots. However, given the platforms' commercial interests and the legal freedom of the Safe Harbor law, they may further neglect these responsibilities (Buchwald, 2017; Helberger, 2018; Helberger, Kleinen-von Königslöw, & van der Noll, 2015). Second, increased public pressure can help to regulate these platforms. To date, the largest impact has been the enactment of the General Data Protection Regulation (GDPR)[14], which protects EU citizens' privacy from any country. Thus, it remains necessary to critically study how emerging social practices that undermine democracy can be addressed.

8.2 Limitations and Future Research Agenda

This synopsis has limitations; these offer an agenda for future research. The limitations relate to Giddens's theory of structuration, the theory's empirical application, the blind spots when working with public measures offered by commercial companies, the definitions of politicians' goal of attracting maximum attention, and the link to the overall media system.

8.2.1 Further Improving the Theoretical Framework

Giddens's (1984) theory of structuration has been criticized early on (e.g., Bertilsson, 1984). I point to three disadvantages of his theory that affected my theoretical framework: the abundance of concepts and the theory's overall complexity, the (stronger) focus on actors' behaviors than on the overall structure, and the difficulty of empirically testing the theory.

[14] See https://eugdpr.org/ (last accessed 8 March 2019).

Besides the difficulty of reading Giddens's work, which he is aware of (e.g., Giddens, 1984, p. xxxv), his theory introduces multiple concepts (Giddens, 1984). These (re)definitions of concepts makes it hard to understand the interrelationships between these concepts and leads to contradictions (Kort & Gharbi, 2013). For instance, his definition of *rules* (Giddens, 1984, p. 19) builds on Wittgenstein's categorization and encompasses four functions but does not specify which of them guides agents' actions or how to account for them (Kort & Gharbi, 2013). Similarly, other key concepts remain vaguely defined and therefore open to interpretation. While this vagueness allows one to use his concepts in a broad range of research problems, it also fragments research, owing to the variety of interpretations. I followed a specific interpretation; those of previous studies of how individuals shape and are shaped by technologies (e.g., DeSanctis & Poole, 1994).

The second criticism relates to the theory's objective of overcoming the dichotomy of actor-focused and structure-focused studies by introducing the structuration process. In Giddens's theory, agents' actions and structures mutually constitute one another and produce social practices. However, according to Barnes (2001), Giddens focuses more on agents' actions than on structures. Similarly, the empirical focus of the presented studies is more on politicians' actions than on the dynamics of platform structures. While a platform-comparative approach allows one to account for structural differences' impacts on users' behaviors, researchers are encouraged to engage in a more elaborate discussion of platforms and their dynamics.

The third criticism concerns the difficulties of empirically applying Giddens's theory. The plethora of concepts and their interrelationships not only complicates empirical analysis; Giddens has also been criticized for his lack of assumptions and methodological guidelines (Kort & Gharbi, 2013). Indeed, Giddens does not "[...] mean to suggest that there is only one format of research which everyone henceforth should

adopt" (Giddens, 1984, p. 327), encouraging the use of his theory for a variety of research interests, without any clear guidelines or hypotheses to be tested. Thus, I have introduced the need for public attention as a driver of the structuration of the networked public sphere, which shed light on social practices fueled by the need for public attention. Additionally, I tied together the four empirical studies in the theoretical framework rather than testing a clear proposition, for instance, which aspects determine certain social practices.

8.2.2 Future Empirical Applications of the Theory

The empirical application of Giddens's theory can be evaluated along the same five criteria Phipps (2001) used for his meta-analysis of other empirical applications of the theory: social behaviors, methodological bracketing, specific data, time-space, and the duality of structure.

In my empirical analysis, I have sought to describe the "common factors in a wide range of human *social behaviors*" (Phipps, 2001, p. 192, my emphasis); thus, it is in line with the first criterion. It connects to previous research, mainly from organizational communication, in which the use of technologies produced certain social practices (DeSanctis & Poole, 1994; Orlikowski, 1992). Criteria 2 and 3, the *methodological bracket* and *specific data* used, can also be considered to be appropriate (Phipps, 2001): I analyzed the strategic use of platforms to identify social practices that are facilitated or hindered by structures. I analyzed data primarily quantitatively, which is also in line with Giddens (1984), who encouraged the use of both qualitative and quantitative data for analysis (e.g., Keller, under review). However, the criterion of *time-space*, i.e. how politicians are either exploiting or are restrained by structuration while transforming their spaces or places (Phipps, 2001), has not been accounted for beyond the reference of the study area (i.e. Facebook, Twitter, Switzerland). For instance, I did not include the

impacts of politicians' communication behaviors on the use of other canvassing efforts, such as going door to door. I tested criterion 5, the consideration of the *duality of structure*, by the analysis of politicians' social practices when aiming to attract maximum attention on two platforms.

The main issue concerning the four empirical studies presented in this synopsis regarding the application of the theory of structuration is that they analyzed four different periods and focused on different modalities of the theory of structuration as well as different actors. Thus, I have demonstrated how different research areas' threads interlink and may be considered when studying politicians' social practices that aim to attract maximum attention, rather than a single paragon study of how to apply the theoretical framework.

8.2.3 Additional Public Measures for Public Attention from Commercial Companies

The public number of followers, fans, or reactions served as proxies for public attention. Although this represents how many users reacted to them, it misses persons who encountered a post but did not react to it. Thus, this is a conservative estimate. However, the platform owners and the individual owners of a Facebook page or Twitter account receive statistics about how many users they have reached. These statistics tend to be overestimated owing to platforms' commercial interests. For instance, users may scroll through their timeline without realizing that they encountered a post, but may nonetheless be counted as a reached user. That is, a post's reported reach may be an overly liberal proxy. Still, an analysis of different politicians' reported reaches may be a useful addition to the analysis of reactions when measuring public attention.

Although platforms attract millions and billions of users, the users' sociodemographics are not representative for any country and differ per platform (Blank, 2017; Blank & Lutz, 2017; Hargittai, 2018; Wells & Link, 2014). That is, each platform

attracts a specific subset of the population. In the UK, for instance, Twitter users are younger than other social media platform users, who are again younger than Internet users, who are again younger than non-users (Blank, 2017); they are also better educated, more often single, and wealthier compared to the respective population (Blank, 2017; Blank & Lutz, 2017). Blank and Lutz (2017) showed that users' sociodemographics differ between platforms and that no platform represents the UK's population. Thus, one must ask what the characteristics of the users who follow and react to politicians' messages on these platforms are. Does the public differ from topic to topic, even from post to post?

8.2.4 Politicians' Goals besides Public Attention

I have argued that politicians' primary goal for using platforms is to attract maximum public attention. In many cases, this hold true, for instance, when politicians seek to win seats in elections or to persuade citizens to vote in a referendum. Yet, there may be several occasions in which maximum attention may not be the goal of their communication. For instance, politicians may target their core voters to strengthen their own identity rather than win voters (e.g., Swiss member of parliament Cédric Wermuth claimed to use his Q&A interviews on Facebook for this purpose) (Endres & Zaugg, 2018). Another reason for not needing maximum attention is to have achieved a certain position in politics. In Switzerland, for instance, the seven executive members of the Federal Council are elected by MPs. This does not require maximum attention from Switzerland's population. Also, their function – as a seven-headed council – is to demonstrate consensus across party ideologies, which manifests in statements that represent neutral compromises rather than emotion-laden statements. Thus, there are communication goals other than maximum attention on these platforms, which possibly produce different social practices.

8.2.5 Links to the Hybrid Media System and (Normative) Public Sphere Theories

While Giddens's (1984) structuration theory seeks to overcome the micro-macro dichotomy, it primarily focuses on individuals' behaviors rather than on the environment or on a given structure (e.g., Kort & Gharbi, 2013). Thus, I linked the theory of structuration to the networked public sphere. However, the theoretical framework needs to be further elaborated, in at least two directions.

First, I only touched on the link between the networked public sphere and the traditional media system. Especially since traditional news providers use these platforms to not only distribute their information, but also compete for attention with them, platforms' roles in the overall media system should be accounted for when investigating politicians' social practices (Chadwick, 2013; Lilleker, Tenscher, & Štětka, 2014). Second, in this synopsis, I did not elaborate on the different (normative) criteria from theories of the public sphere (Ferree, Gamson, Gerhards, & Rucht, 2002). While I followed the theory of the public sphere proposed Gerhards and Neidhardt (1993) and Gerhards (1994), criteria from other traditions would offer new perspectives into how structures and agents' actions must be adjusted in order to establish a certain social practice (e.g., discourses between lay citizens and politicians).

Despite these limitations, this synopsis should stimulate future research into the structuration of the networked public sphere. Especially since the networked public sphere has become a key element in the functioning of democratic societies, scholars should further investigate the interplays between platforms and their users, the emerging social practices, and the unintended consequences that may require regulation to not endanger democracy but, instead, to strengthen it.

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Appendix

Study 1: To Whom Do Politicians Talk and Listen

To Whom Do Politicians Talk and Listen?

Mapping Swiss Politicians' Public Sphere on Twitter

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(Manuscript under review)

Abstract

Politicians use social media platforms to connect with the public. However, who constitutes the public sphere to whom politicians actually talk and listen remains largely unknown, especially because the platform's algorithm determines individuals' visibility. Focusing on the Twitter network of all Swiss MPs, I identified 129,063 Twitter users with whom politicians connected (i.e., their follower–followee network) or to whom they talked and listened (e.g., [were] replied to or retweeted). I conducted a qualitative network analysis to describe the network and a semi-automated content analysis of the Twitter users to classify them (N = 70.589). The results show that the network is dominated by a power–law distribution of attention and is clustered by national languages but not ideology. Politicians talk primarily to citizens, who also react most often to the politicians' messages. However, politicians listen more often to actors close to politics and the media than to citizens.

KEYWORDS: public sphere, Twitter, network analysis, semi-automated content analysis, Switzerland

To Whom Do Politicians Talk and Listen?

Mapping Swiss Politicians' Public Sphere on Twitter

Politicians around the world have adopted social media platforms such as Twitter to connect and interact with the public (Davis, Holtz-Bacha, & Just, 2017). While cyber-optimists hoped that these platforms would enable more people to make their voices heard in political debates, and cyber-pessimists countered that various digital divides might hinder this (for an overview, see Schäfer, 2015), it remains largely unknown *whom* politicians actually encounter on Twitter. Especially because the platform's algorithm strongly influences the extent to which actors are visible to each other, it might show that politicians connect only with other politicians, that they broadcast their messages primarily to lay citizens, and that they listen, for the most part, to journalists on Twitter.

Previous research pointed to two key constraints introduced by the platforms' networked public sphere: First, the attention for individuals and their posts follows a power-law distribution. That is, only very few posts receive a great deal of attention, while most of the others reach only a small audience (Barabási & Albert, 1999; Benkler, Roberts, Faris, Solow-Niederman, & Etling, 2015; Nielsen & Vaccari, 2013). Second, because users react mainly to the posts with which they agree, they might find themselves isolated in ideological echo chambers (Barberá, Jost, Nagler, Tucker, & Bonneau, 2015; Gruzd & Roy, 2014; Sunstein, 2009). These characteristics shape the overall structure of the network and might thereby hinder connections and debates between users.

With the exception of one study (Benkler et al., 2015), previous research has not explored the question of how groups of actors are affected by the platform's constraints. Overall, studies have seldom focused on *who* connects or reacts to politicians. To date, scholars have analyzed only the friends or followers of politicians, always focusing on specific reactions, such as to whom politicians reply (Ausserhofer & Maireder, 2013; Graham, Broersma,

Hazelhoff, & van 't Haar, 2013; Spierings, Jacobs, & Linders, 2018; Vaccari & Valeriani, 2015). Apart from one study on Netherland's MPs' Twittersphere (Spierings et al., 2018), these studies have also used only very broad categories of actors. For example, they have differentiated between politicians, journalists, experts and activists, and citizens only (Ausserhofer & Maireder, 2013).

Solely a comprehensive analysis of the network structure's effects on the myriad of groups of actors (e.g., executive politicians, scientists, social organizations, and lay citizens), stratified by those to whom politicians connect (i.e., follow and are being followed), talk (i.e., likes, mentions, replies, and retweets from users), and listen to (i.e., likes, mentions, replies, and retweets from a politician), allows for an assessment of whether the public sphere of Twitter enables a variety of actors to have a say and be heard. This is why I ask, *How do network characteristics shape who politicians talk and listen to?*

This case study of Swiss politicians on Twitter enhances the understanding of the networked public sphere in three ways. First, this study combines the network's characteristics with a detailed analysis of the group of actors affected by it. Given this combination, not only can the network be described on a macro-level, it also shows who is affected by it on the individual level. Second, by analyzing not only replies but also all other reactions, such as "likes" and "retweets," it sets the threshold low with regard to taking part in political debates. It thereby also includes reactions which were more often used than others (e.g., retweets compared to replies) and users who invest less in political debates (e.g., with a like) than others (e.g., with a reply), which includes more voices than other approaches. Third, this analysis focuses on both sides of the politicians' Twittersphere: On the one hand, politicians are being followed and reacted to, which indicates with whom they talk and who actively spreads their messages (Vaccari & Valeriani, 2015). On the other hand, politicians follow and react to others, which points to those whom they amplify and listen to (Benkler et al., 2015; Dobson, 2012; Spierings et al., 2018).

Two Characteristics of a Networked Public Sphere

Public sphere theories focus on spaces in which different actors with different arguments can discuss politically relevant issues (Rauchfleisch & Schäfer, 2015). In all three dominant traditions within the public sphere theories (liberal, discursive, and constructionist), the question of which actors participate in public discourses plays a crucial role (Ferree, Gamson, Gerhards, & Rucht, 2002). However, the traditions differ when it comes to their normative assumptions regarding who should participate. In the liberal tradition, the public sphere should reflect and include the varied ideological positions and voices according to their proportionalities in society. In the deliberative tradition, all people (or at least their representatives) who are affected by political decisions should participate; these include actors from the political periphery, such as citizens, and not only those from the political center, such as politicians. In the constructionist's tradition, all citizens, especially marginalized groups, should be empowered to participate (Ferree et al., 2002; Wessler, 2008).

The advent of the World Wide Web and later social media platforms brought into the limelight the question of who is participating in the networked public sphere. Scholars have attempted to predict whether these platforms have offered more actors opportunities to have a say and be heard (for an overview, see Schäfer, 2015). On the one hand, these platforms have been perceived as a "magic elixir" (Stromer-Galley, 2000, p. 113) that allows citizens from the political periphery to engage with politicians (e.g., Rheingold, 2000). On the other hand, scholars have stressed the possible colonization of the Web and social media platforms by capital (Dahlberg, 1998; van Dijck, 2013): Although these platforms allow users to connect, talk, and listen to politicians, the visibility of actors might differ significantly between those who have monetary resources and those who do not (e.g., Williams & Gulati, 2013).

Indeed, the algorithmically moderated share of attention in a networked public sphere is not distributed equally. It mostly follows a power–law distribution: While only very few receive most attention, most receive very few. This finding remains consistent since the early

days of the World Wide Web. Barabási and Albert (1999) modeled how networks expand continuously but link preferentially to sites that are already well connected. The same distribution was found for attention to US politicians' websites, as well as their Facebook, Twitter, and YouTube accounts, in terms of number of followers (Nielsen & Vaccari, 2013) and reactions on Facebook and Twitter (Keller & Kleinen-von Königslöw, 2018a). Thus, not only are the Internet and its link structure predestined for a power–law distribution of attention, but the platforms' algorithms also strengthen this kind of distribution. Consequently, I hypothesize as follows for the case of Switzerland: *The number of Swiss politicians' connections and reactions follows a power–law distribution. (H1)*

Another concern regarding social media platforms' networked public sphere related to their tendency toward "more of the same." Based on the theory of cognitive consistency (Festinger, 1957), users tend to select the news items with which they agree (Iyengar & Hahn, 2009). That is, they create ideological echo chambers (Sunstein, 2009). This might lead to an environment in which groups of different echo chambers might be hardly visible to others and debates across party lines remain scarce. Indeed, topic-specific echo chambers were found, for example, in the run-up to the 2011 Canadian elections (Gruzd & Roy, 2014). However, these networks were always flexible and situation-specific; that is, they were not impenetrable (Barberá et al., 2015). Because Switzerland is regarded as an ideal type of consensus democracy (Lijphart, 1999), actors can be expected to talk and listen to others across ideologies in a networked public sphere. The country, however, has four national languages: 63% of the Swiss population primarily speaks German, 23% French, 8% Italian, and half a percent Rhaeto-Romanic (BFS, 2018). Thus, language differences might play a greater role than ideology in shaping the network's structure (Arlt, Rauchfleisch, & Schäfer, 2018). Thus, I expect the following: *Swiss politicians' Twittersphere is clustered according to language rather than ideology. (H2)*

To Whom Do Politicians Talk and Listen on Twitter?

Despite the platform's characteristics, politicians all over the globe have adopted social media platforms—especially Twitter—to connect with the public (Davis et al., 2017). In Switzerland, adoption rates of Twitter among MPs rose steadily from 2008 on to 30% in 2012 (Rauchfleisch & Metag, 2016). A total of 454 candidates in 2013 and 351 in 2014 used a Twitter account to win one of the 222 seats in the Australian parliament (Bruns & Moon, 2018). In the Netherlands, 96% of all MPs had a Twitter account in 2016 (Spierings et al., 2018).

Due to Twitter's character limit for tweets and focus on news, the micro-blogging platform was adopted in particular by journalists, politicians, and other rather "elite" accounts (Ausserhofer & Maireder, 2013; Metag & Rauchfleisch, 2017). However, the platform can also serve as an expansion of the elite: parliamentary backbenchers, bloggers, comedians, and independent Twitter users dominated the group of most retweeted Twitter users during a routine three-week period in Norway (Rogstad, 2016). Spierings et al. (2018) showed that primarily lay citizens addressed Dutch MPs during a routine phase in 2016 (50% of all incoming replies), and yet, MPs replied more often to other political actors (26%) and people representing civil society and business interests (24%) than to lay citizens (23%), although the differences are minimal. Graham et al. (2013) found a different picture for the UK's MPs during the 2010 general election campaign: Of the total number of replies by UK's MPs, 59% were directed to the public, accounting for the largest share, followed by other politicians (16%), and journalists (10%). Ausserhofer and Maireder (2013) showed that the political Twittersphere in Austria is dominated by politicians and journalists; citizens, conversely, played a minor role in the discourses. Vaccari and Valeriani (2015) analyzed the followers of the Italian party leaders during the 2013 general election and showed that most of their top followers were individuals (71%), male (78%), and Italian (62%). A third of those followers were part of the sports, show business, popular culture, or arts industry; 22% belonged to the media sector; and 3% were comedians (Vaccari & Valeriani, 2015).

While these studies focused on the followers or friends of and/or replies by politicians, they shed light on only a specific part of the politicians' Twittersphere. The number of followers represents the potential audience but neglects all of those who react to politicians' tweets yet are not followers and may belong to the secondary audience. The politicians' friends and replies reflect the users to whom they have listened but ignore those whose tweets they have liked, retweeted, and mentioned. Thus, all four kinds of reactions need to be taken into account to assess the public sphere of politicians: When users *reply* and, thus, interact with someone; *retweet* a tweet to redistribute it; *mention* someone, which notifies and links to the mentioned user; and *like* a tweet to show support for or at least acknowledge a message (see also Larsson, 2017). These connections and reactions are used bidirectionally. To assess the politicians' Twittersphere, both the *incoming* connections (followers) and reactions (e.g., if a user retweets a politician's tweet) and *outgoing* connections (friends) and reactions (e.g., if a politician retweets a user's tweet) need to be analyzed.

Incoming connections and reactions indicate who possibly receives the politician's tweets and actively spreads his or her messages. They reflect the (active) audience of a politician and stand for the users to whom he or she talks. Due to the platform's logic (Klinger & Svensson, 2015), it is in the interest of a politician to attract a large number of followers who will actively spread his or her messages to their respective networks (Keller & Kleinen-von Königslöw, 2018a). The higher the number of reactions to a tweet, the larger the audience it reaches (Karlsen & Enjolras, 2016; Klinger & Svensson, 2015). However, politicians might also benefit if highly influential accounts follow them and spread the politicians' messages to their networks. For example, the "top followers" of the Italian party leaders are celebrities who, if they retweeted a politician's tweet, might reach lay citizens who might otherwise not engage with politics (Vaccari & Valeriani, 2015). Whether politicians' tweets reach a large audience or highly influential accounts, mere exposure to them has been shown to result in a more positive attitude toward the politicians and leads to a heightened feeling of social presence, in

turn causing a favorable impression and stronger voting intentions (Kobayashi & Ichifuji, 2015; Lee & Jang, 2013; Lee & Shin, 2014). It remains unknown, however, whether Swiss politicians reach potential voters—as opposed to only other political actors, such as party accounts—and who spreads the politicians' tweets. Consequently, I ask: *To whom do Swiss politicians talk on Twitter? (RQ1)*

Outgoing connections and reactions indicate to whom politicians listen. Listening is a concept that is seldom under investigation, although its role in increasing legitimacy and improving understanding between politicians and citizens is as important as that of talking (Dobson, 2012). To listen, MPs follow other users. The news that MPs find in their news feed serves as a proxy for public opinion (Jungherr, 2016). However, they neither follow a representative sample of the Swiss population, which Twitter could not provide (Hargittai, 2018), nor does a random sample of tweets end up in their news feed. They might specifically select whom they follow. Thus, politicians see very different news feeds on Twitter, depending on whom they follow, to which tweets their networks react, and finally, which tweets Twitter's algorithm selects for them. They also react selectively to tweets and, thus, amplify them. If they retweet a lesser-known actor, he or she benefits from the followership of the politician. For example, during the SOPA–PIPA debate, a variety of individuals on the periphery played a crucial role when they were amplified by more visible actors (Benkler et al., 2015). Whereas MPs in the Netherlands listened primarily to actors close to the political system, UK's MPs replied most often to the public (Graham et al., 2013; Spierings et al., 2018). Thus, I ask, *To whom do Swiss politicians listen on Twitter? (RQ2)*

The Case of Switzerland

Although the Swiss case has unique specifics, Switzerland is overall a comparable case regarding Internet penetration, as well as the role of Twitter in political communication and its political system: In general, nine out of ten members of the Swiss population (8.42 million) use

the Internet. A total of 16% of the Swiss population use Twitter, and 8% publish tweets actively (Latzer, Büchi, Festic, & Just, 2017). Twitter's role in Switzerland, as in other countries, is characterized by its focus on the news (Levy, Newman, Fletcher, Kalogeropoulos, & Nielsen, 2018; Metag & Rauchfleisch, 2017). Switzerland's political system is a multiparty system with a two-chamber parliament and a government coalition. In 2018, the members of eleven parties were represented in the parliament. With 69 representatives, the right-wing party SVP has the strongest representation in parliament, followed by the left-wing party SP (55); the liberal party FDP (46); the conservative party CVP (40); the Green party (12); the liberal center party BDP (8); and the green liberal party GLP (7). Two parties are represented by only two people (the right-wing party Lega and the conservative Protestant party EVP) and three by one person (the left-wing party PdA, the conservative party CSPO, and the right-wing party MCR).

Three principles make the Swiss case stand out: the consensus principle, the militia system, and direct democracy (e.g., see Kriesi, 2008). First, parties from opposite sides work according to the consensus principle: For example, the Federal Council serves as the executive head of the government and consists of seven people, with members representing the left, center, and right parties. This is one reason why negative campaigning did not gain traction in Switzerland and political parties look for consensus across different ideologies (Keller & Kleinen-von Königslöw, 2018b). Second, Swiss politicians work in a militia system. Traditionally, politicians such as MPs worked on a volunteer basis, which meant that politics was their part-time job. Although this still holds true in principle, most MPs have become professional politicians. However, because the militia system is a key tradition in many parts of the Swiss (political) system (e.g., military), politicians are expected to be part of the industry and to keep close to the people. Another outcome of the militia system is that Swiss parties and the MPs themselves are less professionalized than in other countries. They have fewer resources, and their jobs are oftentimes undertaken on a volunteer basis. This is why most politicians have no professional support for running their social media accounts. This makes

the Swiss case especially interesting because MPs run their social media accounts by themselves. Third, the national parliament constitutes itself four times per year for three weeks in "sessions" to meet, debate, vote, and hand in parliamentary submissions. Because Switzerland is a direct democracy, Swiss citizens are called to the ballot box to vote for or against a referendum three to four times per year, which is why MPs try to stay close to the people.

Methods

The starting point of the study built the 156 (63%) Twitter accounts among the total 246 members of the Swiss parliament on the first day of the fall session (September 10th–28th, 2018) which were identified manually via Twitter search. Using the "rtweet" package (Kearney, 2018), I downloaded all the followers and friends of the MPs (i.e., the users whom the MPs follow), including their profile descriptions, during the last two weeks of September. To ascertain who MPs reply to, retweet, mention, and like, all the timelines and liked tweets of each MP were downloaded, including the users' profile descriptions. To determine who mentioned, replied to, or retweeted an MP, all tweets containing a political actor's Twitter handle were downloaded via the search API, which also included the users' Twitter profile descriptions. Due to Twitter's API restriction, it was impossible to download information on who liked an MP's tweet. Because of a few accounts' privacy settings and the fact that some accounts were already removed from Twitter, the profile descriptions of 73 accounts (8 accounts to which an MP replied, 17 to which an MP retweeted, and 48 to which an MP mentioned) could not be retrieved. In total, 129,063 unique accounts were identified and their account information downloaded.

Classification Categories

An MP's public sphere on Twitter consists of a variety of actors (Graham et al., 2013; Spierings et al., 2018; Vaccari & Valeriani, 2015). From an ideal–typical point of view, these actors can be categorized into four communicative stages in regard to politics: assert, aggregate, or articulate political interests – or report about politics (Jarren & Donges, 2011).

The first group of actors asserts political interests at the local, regional, or national level. These actors are executive politicians, such as members of the federal council, mayors, or ministers. The second group consists of political parties and (non-MP) elected politicians. These actors have close ties to the political system and executive politicians. However, their main goal is to aggregate the political interests of their electorates. The third group comprises individuals and organizations that articulate their interests. These are NPOs, NGOs, or social movements (social organizations); profit-oriented businesses (private industry); the representatives of such organizations (e.g., leaders) or businesses (e.g., CEOs) or board members, scientists (e.g., professors, researchers, and universities), celebrities (e.g., comedians or sports personalities), and citizens (e.g., self-described citizens). The fourth group is composed of media organizations and journalists, who function as intermediates and commentators. These are bloggers, commentators, columnists, editors, and other people who are affiliated with news companies (Jarren & Donges, 2011).

Two actor-specific actors invade political discussions: spam accounts that try to sell or promote their products using trending hashtags (Ausserhofer & Maireder, 2013) and automated programs called social bots, which imitate humans and human behavior (Davis, Varol, Ferrara, Flammini, & Menczer, 2016)

Semi-Automated Twitter Account Analysis

The semi-automated content analysis of Twitter profiles started with an automated, dictionary-based analysis. The unit of analysis was each user's profile description and URL.

Following the approach and keyword lists of Spierings et al. (2018), I first generated lists of keywords and account handles for each category: The list of MPs was generated manually by searching for each MP on Twitter. The keyword lists of ministers and executive members of parliament (*executive politicians*), *political parties*, former and foreign politicians (*non-MP and other politicians*), and Swiss and other European media outlets stemmed from own previous research. I used the Twitter search to identify individual journalists who were affiliated with news companies, and I added them to the list of *journalists.* Lists containing various nonprofit and nongovernmental organizations, as well as social movements and their leaders (*social organizations*), profit-oriented businesses and their leaders (*private industry*), and *celebrity and satire* accounts were each manually created by searching accounts via the Twitter search and political hashtags. A list of keywords indicating the private use of Twitter, such as "citizen," "father," or "mother," was used to identify citizens and other individuals. The list of spam and advertisement keywords was based on an Keller and Klinger's study (Keller & Klinger, 2018). No keyword list of social bots was created because I relied on Botometer to test all 129,063 accounts (Davis et al., 2016) (see Appendix A).

The keyword lists were used to identify accounts by their public Twitter descriptions and Twitter screen names. Of the 129,063 accounts, only 70,589 had at least a description or a URL by which they could be identified. The other 58,474 were omitted from the analysis. After running the identification process, all accounts belonging to each category were checked manually by asking the following questions: Is the account classified correctly? If not, which keyword needs to be removed or adapted? A manual analysis of (a sample of) the results was conducted after each run. After several runs neither improved the number nor the correct classification, the automated analysis ended with 51% (36,243 accounts) identified (see Appendix B).

Testing the reliability of the automated analysis, a second experienced coder classified a sample of 90 accounts containing at least 10 accounts from each category (most accounts fell

into multiple categories). The results showed satisfactory agreement (at least a Krippendorff's alpha value above 0.79 for all categories). To test the validity of the automated analysis, the coder double-checked the classification of each account in a sample of 180 accounts, including at least 20 accounts from each category. At least 99.93% of positives per category were classified correctly.

The automated classification may include biases because the keywords were based on the author's and other researchers' lists and not all users describe themselves using the same words; therefore, manual content analysis was also conducted. A stratified random sample of 150 accounts per category (e.g., replies and retweets, total N = 1,287 accounts) was drawn from all the accounts that could not be classified automatically. The author and the trained coder conducted the manual content analysis. Each account's Twitter screen name, description, and profile URL (if necessary, its linked content) were analyzed. The same categories that were used for the automated analysis were used for this process. Following Spierings et al. (2018), the results from the manual content analysis were extrapolated to the unclassified accounts, and the classification was used hierarchically to ensure the clear identification of actors (see Appendix C).

Results

The power–law distribution of attention with regard to the number of followers, friends, and tweets is striking. Only a small number of MPs have the most followers and friends, while most MPs have only a few followers (median = 1.545, mean = 3.501, max. = 46,004, min. = 37) and friends (median = 314, mean = 591, max. = 4,570, min. = 0). Together, the three MPs with the most followers (Cédric Wermuth [SP]: 46,004 followers, Natalie Rickli [SVP]: 45,317, and Christian Levrat [SP] 33,802) have 23% of all followers, which is two to three times as many followers as the subsequent MPs combined (Balthasar Glättli [Greens]: 17,876 and Jacqueline Badran [SP]: 16,055). The MP with the most followers also has more than the 68

MPs with the least number of followers combined. The same power–law distribution also applies to friends, although it is less extreme: Marco Romano (CVP) has the most friends, with 4,570, which amounts to more than the 53 MPs with the fewest friends combined.

At the level of tweets, the power–law distribution of attention dominates again (see Table 2). Roger Köppel (SVP) received the most incoming reactions: more than two third of all retweets (67%: 4,922 of 7,311), more than a third of all mentions (37%: 6,510 of 17,724), and more than a fourth of all replies (28%: 2,256 of 7,997). The MP with the second-most incoming reactions did not receive half as many as Roger Köppel. Although the same power–law distribution is shown to be true for outgoing reactions, Roger Köppel does not appear at the top. Claudio Zanetti (SVP) replied most often (26%: 186 of 710), retweeted most often (24%: 638 of 2,702), and mentioned most often (21%: 675 of 3,190). Again, the MP who reacted to others most often was not half as active as Claudio Zanetti. Although less unequal, the same power–law distribution is visible for likes: While Maya Graf (Greens) liked the most tweets, with 322, this figure accounts for only 6% of all likes (5,617). The likes of the 13 subsequent MPs each account for at least 3%. Overall, only a few MPs talk and listen to multiple times more users than most others. Thus, the Swiss MPs' network is strongly characterized by a power–law distribution of attention (support for H1).

Table 1.

Summary of MPs' Networks, Numbers of Users Reacting to MPs' Tweets, and Numbers of MPs Reacting to Users' Tweets

	Unique users	*Mean users per MP*	*Median users per MP*	*Max. users per MP*	*Min. users per MP*
Followers	117,393	3,501	1,545	46,004	37
Friends	29,730	591	314	4.570	0
Incoming Replies	2,506	37	10	961	1
Incoming Retweets	2,821	52	11	1.768	1
Incoming Mentions	4,976	66	24	2.167	1
Outgoing Replies	396	7	2	102	1
Outgoing Retweets	1033	16	7	329	1
Outgoing Mentions	1510	32	15	415	1
Outgoing Likes	1,843	33	17	187	1

Note. A total of 156 MPs with Twitter accounts were included, of which 146 were replied to, 65 were retweeted, and 155 were mentioned. A total of 73 MPs replied, 108 retweeted, 113 mentioned, and 111 liked at least once. The number of unique users includes users without descriptions/profile URLs.

Table 2.

Summary of MPs' Network, Number of Users Reacting to an MP's Tweet, and Number of MPs' Reacting to Users' Tweets

	Sum of tweets	*Mean tweets per MP*	*Median tweets per MP*	*Max. tweets per MP*	*Min. tweets per MP*
Incoming Replies	10,490	51	9	2,256	0
Incoming Retweets	7,997	69	5	4,922	0
Incoming Mentions	17,724	114	25	6,510	0
Outgoing Replies	710	5	2	186	0
Outgoing Retweets	2,702	17	4	638	0
Outgoing Mentions	3,190	20	4	675	0
Outgoing Likes	5,617	36	8	322	0

Note. The note for Table 1 also applies here.

The reply network created using Gephi illustrates the power–law distribution of attention whether MPs react across party lines and overcome language barriers. Overall, the reply network of the Swiss MPs has a size of 2,956 nodes and 5,782 edges (density of 0.001; average path length of 5.3). The network has three distinct clusters (see Figure 1a and Appendix D).

The largest distance is due to differences in language rather than ideology. Whereas the cluster on the left revolves around Francophone MPs, the cluster in the middle and on the right reflect German-speaking MPs. However, these clusters differ minimally by ideology. The key MPs in the French-speaking group are Philippe Nantermod from the liberal party FDP and Ada Marra from the left party SP. Both received more than 29 replies and replied more than nine times. The cluster, however, consists of MPs representing different ideologies—for example, from the liberal party (e.g., Isabelle Moret), Green party (e.g., Adèle Thorens), green liberal party (e.g., Isabelle Chevalley), conservative center party CVP (e.g., Guillaume Barazzone), and left party SP (Liliane Maury Pasquier). The two mostly German-speaking groups are divided due to a single Twitter user on the bottom right: right-wing MP Roger Köppel (SVP). Although he entered the political arena as a politician only recently, in 2015, he is well known due to his ownership of and articles in his weekly (political) magazine and his public talks. The main topics of his talks and his tweets relate to immigration, Islam, and Switzerland's non-membership of the European Union. Although SVP member Claudio Zanetti has a similar stance and agenda, he is in the midst of political discourses with MPs from other parties. He is the MP with the most outgoing replies, followed by Balthasar Glättli (Greens) and Gerhard Pfister (CVP). They are all part of the large middle cluster alongside politicians from the left, such as Cédric Wermuth (SP); from among the liberals, such as Petra Gössi (FDP); from the middle, such as Elisabeth Schneider-Schneiter (CVP); and from the right, such as Natalie Rickli (SVP). It can, thus, be stated that Swiss MPs debate across party ideologies and that the distinctions between the clusters is due to their different languages rather than to their ideologies (thereby supporting H2).

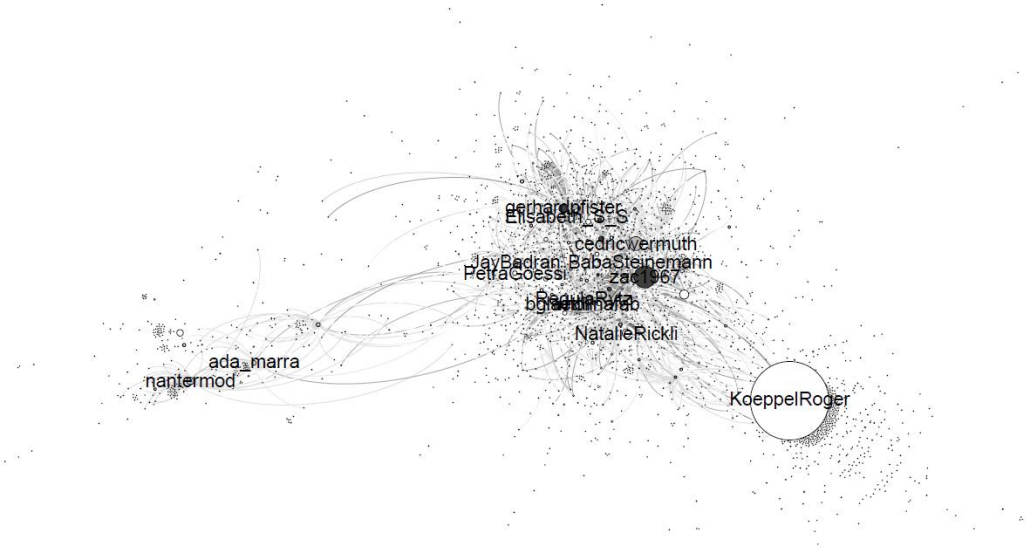

Figure 1a. Reply network of Swiss MPs' Twittersphere during the fall session of 2018.

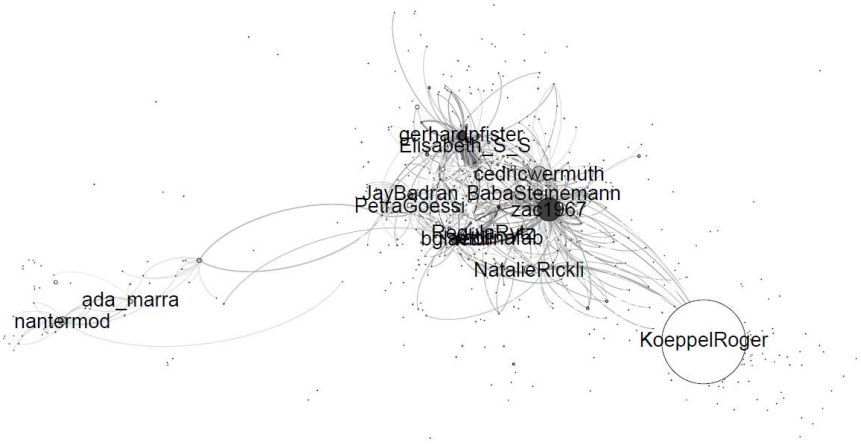

Figure 1b. Reply network of Swiss MPs' with lay citizens during the fall session 2018.

Note. Twitter screen names are shown for only the MPs with an indegree (incoming replies) larger than or equal to 30 and an outdegree (outgoing replies) larger than or equal to 10. The larger the node, the greater its indegree, and the darker the node, the greater its outdegree. The network shows only the center of the graph, which was created using the "ForceAtlas 2" algorithm in Gephi.

The qualitative analysis of the networks revealed no substantial differences between the clusters with regard to the groups of actors involved (see Appendix D for additional network analyses). For example, if only connections between MPs and lay citizens are shown, the reply

network still has all three clusters and shows a similar distribution of edges (see Figure 1b). This is why the MPs from the three clusters were reaggregated to determine *to whom* MPs talk and listen.

Swiss MPs talk primarily to lay citizens, who account for over a third of all of their followers (37%) (see Table 3). The second-largest group is composed of social bots, which are, in this case, mostly inactive accounts (see Appendix B). The third-largest share comprises journalists (11%), followed by scientists (5%), and accounts representing private industry (4%). Those who not only follow but also actively spread MPs' tweets again mostly comprise lay citizens, followed by journalists, individuals representing the interests of private industry, and non-MP politicians and other political accounts. More specifically, lay citizens' replies, retweets, and mentions account for 52% of all incoming reactions and are, thus, vital multipliers for Swiss MPs. Of all the incoming reactions, 15% are from individuals who were close to the political system, such as executive politicians and political parties, as well as other political accounts. MPs also reply, retweet, and mention each other. However, their tweets account for only 2% of incoming reactions. The third-most active group comprises users from private industry or social organizations (11%). They are closely followed by users from the media sector: Of all the reactions that Swiss MPs received, 10% were from individual journalists, and merely 1% came from the accounts of media organizations. Other groups such as board members, scientists, or celebrities and comedians sent 7%. Thus, Swiss MPs' multipliers are mostly lay citizens. However, inactive accounts, accounts run by journalists, and other political accounts make up for another large share of their (active) followers (RQ1).

Table 3.
Swiss MPs' Connections, Incoming Reactions, and Outgoing Reactions with Other Twitter Users

	Followers	*Friends*
MPs	137 (0.2%)	140 (0.6%)
Executive politicians	1,487 (2.5%)	972 (3.9%)
Political parties	487 (0.8%)	466 (1.9%)
(Non-MP) political accounts	1,177 (2.0%)	1,016 (4.1%)
Media accounts	122 (0.2%)	425 (1.7%)
Journalists	6,844 (11.4%)	4,374 (17.6%)
Social organizations	2,150 (3.6%)	1,151 (4.6%)
Private industry	2,609 (4.4%)	1,804 (7.3%)
Board members	997 (1.7%)	748 (3.0%)
Scientists	2,756 (4.6%)	1,417 (5.7%)
Satire and celebrities	188 (0.3%)	268 (1.1%)
Lay citizens	21,883 (36.5%)	9,407 (37.8%)
Spam and advertisements	787 (1.3%)	274 (1.1%)
Social bots	18,373 (30.6%)	2,404 (9.7%)
N	*59,997*	*24,868*

Table 3 (continued).

	Incoming Replies	*Incoming Retweets*	*Incoming Mentions*
MPs	40 (2.0%)	50 (2.2%)	86 (2.1%)
Executive politicians	79 (4.0%)	63 (2.8%)	140 (3.4%)
Political parties	65 (3.3%)	70 (3.1%)	154 (3.8%)
(Non-MP) political accounts	129 (6.5%)	167 (7.4%)	364 (8.8%)
Media accounts	13 (0.7%)	40 (1.8%)	67 (1.6%)
Journalists	207 (10.4%)	142 (6.3%)	450 (11.0%)
Social organizations	85 (4.3%)	86 (3.8%)	282 (6.8%)
Private industry	139 (7.0%)	144 (6.4%)	211 (5.1%)
Board members	17 (0.9%)	36 (1.6%)	47 (1.1%)
Scientists	127 (6.4%)	80 (3.6%)	189 (4.6%)
Satire and celebrities	67 (3.4%)	20 (0.9%)	18 (0.4%)
Lay citizens	985 (49.5%)	1.297 (57.7%)	2.030 (49.3%)
Spam and advertisements	18 (0.9%)	12 (0.5%)	2 (0.1%)
Social bots	19 (1.0%)	41 (1.8%)	81 (2.0%)
N	*1,991*	*2,246*	*4,121*

Table 3 (continued).

	Outgoing Replies	*Outgoing Retweets*	*Outgoing Mentions*	*Outgoing Likes*
MPs	37 (10.1%)	63 (6.3%)	105 (7.2%)	85 (4.9%)
Executive politicians	24 (6.5%)	79 (8.0%)	138 (9.5%)	161 (9.3%)
Political parties	10 (2.7%)	56 (5.6%)	114 (7.9%)	93 (5.4%)
(Non-MP) political accounts	40 (11.0%)	124 (12.5%)	168 (11.5%)	192 (11.1%)
Media accounts	10 (2.7%)	66 (6.7%)	140 (9.6%)	85 (4.9%)
Journalists	84 (23.0%)	193 (19.0%)	226 (15.6%)	303 (18.0%)
Social organizations	18 (4.8%)	133 (13.0%)	196 (13.5%)	158 (9.1%)
Private industry	20 (5.5%)	38 (3.8%)	99 (6.8%)	100 (5.8%)
Board members	6 (1.6%)	28 (2.8%)	42 (2.9%)	61 (3.5%)
Scientists	15 (4.2%)	41 (4.2%)	64 (4.4%)	93 (5.4%)
Satire and celebrities	4 (1.0%)	12 (1.2%)	24 (1.7%)	31 (1.8%)
Lay citizens	96 (26.1%)	154 (15.5%)	121 (8.3%)	361 (21.0%)
Spam and advertisements	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)
Social bots	3 (0.8%)	6 (0.6%)	15 (1.0%)	9 (0.5%)
N	*366*	*993*	*1,452*	*1,732*

Note. N refers to all unique users with either a description or profile URL. This number may vary from the sum of all the extrapolated single numbers because the latter were rounded.

MPs connect with similar groups that follow them and, thus, show interest in listening to them. The largest share of the Swiss MPs' friends are lay citizens (38%), followed by journalists (18%), social bots (i.e., mostly inactive accounts) (10%), and individuals representing private industry (7%). However, MPs do not react to these groups as often as they follow them. Although they most often reply and like (and second-most often retweet) tweets from lay citizens (26%, 21%, and 16%, respectively), if aggregated, they reacted most often to individuals who are close to the political system, such as other MPs and executive politicians, as well as political parties and other political accounts (32% of all outgoing reactions). Second most often, the MPs' reactions addressed journalists and media accounts (25%). Accounts further away from the political system were included less often in MPs' tweets: lay citizens were included in 18% of their tweets, social organizations and accounts representing the private industry were included in 16%, and other individual accounts—such as those of board members and scientists, as well as satire and celebrity accounts—were included in 9%. Thus, Swiss MPs connect with many lay citizens but reply, retweet, and like them less often than other politicians and journalists on Twitter (RQ2).

Discussion

From the perspective of public sphere theories, this study focused on how the network characteristics shape *who* politicians talk and listen to on Twitter. Overall, the politicians' networked public sphere showed strong signs of a power–law distribution of attention. Twitter's algorithm seems to favor the visibility of tweets and individuals who already received a great deal of attention. This favors only very few politicians who might crowd out other actors and opinions in the public sphere. However, the network did not indicate ideological echo chambers but, rather, language clusters. That is, the network characteristics did not hinder politicians from engaging in discussions across party lines; rather, the limitation was due to their language skills.

However, the platform's characteristics did not seem to affect who politicians talk and listen to. The Swiss MPs were strongly connected with lay citizens, who accounted for more than a third of their followers and friends. As actors who are far away from the political center, lay citizens also played a vital role in spreading and reacting to political messages: They accounted for almost 58% of all retweets by MPs. Although MPs have the most connections to lay citizens, they reacted most often to users who are close to the political system, such as journalists and individuals running other political accounts: Of all the MPs' replies, 10% were directed toward other MPs and every fourth toward someone from the media sector. That is, MPs connect with and benefit from lay citizens on the political periphery, as they serve as multipliers on Twitter; however, MPs' tweets are more focused on other politicians and journalists.

Although the focus of this study is on Switzerland, it is mostly in line with previous research regarding the network characteristics and actors in the Twittersphere of other countries. The network showed the power–law distributions of the numbers of connections and reactions. Regarding followers on various social media platforms (Nielsen & Vaccari, 2013), only very few Swiss MPs receive most attention. Additionally, the same language clusters were evident in the three-week period as during the national discussion about the Nuclear Withdrawal Initiative in 2016 (Arlt et al., 2018).

As in the research conducted by Spierings et al. (2018), this study focused on a routine phase and included whom MPs follow and @-mention: As for the Netherlands' MPs, lay citizens mostly reply to Swiss MPs, but MPs reply more often to other political accounts. Additionally, both countries' MPs often retweet other political accounts and users from the media sector. However, while only 13% of the individuals in the Netherland's MPs' friends network consisted of lay citizens and almost never retweet them (Spierings et al., 2018), Swiss lay citizens account for over a third of Swiss MPs' friends and are the group that is retweeted the third most often. Thus, although both countries' MPs have similar networks and focus on

actors who are close to the political system (and the media), lay citizens are more often amplified by MPs in Switzerland than in the Netherlands. While these two studies focused on a routine period, Graham et al. (2013) focused on a campaign period. In that time, the UK's MPs replied to 59% of all replies to members of the public, which is far less often than the replies to other politicians (16%) and journalists (10%). It might, thus, be that the Swiss MPs would reply even more often to lay citizens during the election period than in the routine phase. Valeriani and Vaccari (2015) analyzed the Italian party leaders' followers during the 2013 national election and found that most "top followers" were celebrities. However, in Switzerland, only very few celebrities were found in the routine period, and in addition, they did not have the most followers themselves. Again, it may be that celebrities with large followerships enter the political debate during election phases, thereby having a strong impact on the elections; however, this was not the case in the routine period under investigation.

The deviating results can be explained by three specifics related to Switzerland. The country's traditional militia system and direct democracy require Swiss MPs to stay close to the public. Indeed, even in a nonelection phase, Swiss MPs often connect and react to lay citizens: more than every fourth reply is directed to a lay citizen, and every fifth liked tweet is from a lay citizen. These reactions indicate that Swiss MPs read lay citizens' tweets and engage in discussions with them, which might pay off. An MP's replies may, in return, yield substantial goodwill, such as the increased intention to vote for him or her (Lee & Shin, 2012; Tromble, 2018). Even if MPs only like lay citizens' tweets, this might increase the citizens' goodwill because it will show that the MP read, liked, and possibly agreed with the tweet and generally keeps close to users who are on the political periphery.

This study has its limitations. Although the three-week period covered a representative routine phase of Swiss politics, it is not the only time that MPs need to talk and listen to groups on the political periphery, such as lay citizens. Apart from local and national elections, citizens are called to the ballots three to four times per year to have the final say on national votes. MPs

could play a crucial role in persuading citizens to vote yes or no in these votes – simply by amplifying other minor actors (Benkler et al., 2015). Additionally, the study did not focus on the content of tweets. Tromble (2018) found that politicians tend to go silent upon receiving negative replies, which might also be the case in Switzerland. Furthermore, because of Twitter's API restrictions, it was not possible to ascertain who liked the MPs' tweets. Because "likes" is the most used reaction, it remains unknown whether the groups close to the political system or those further away from it account for the largest number of those who like MPs tweets. Especially in the cases in which the number of reactions is used as an indicator of public opinion (Jungherr, 2016), it would be crucial to know whether this number reflects the views of the public or simply those of many politicians.

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Supplemental materials

A. Distribution of Botometer scores of the identified accounts

Botometer generates over 1,200 features from a Twitter user (Davis et al., 2016). These can be grouped into network, user, friend, temporal, content, and sentiment features (Varol, Ferrara, Davis, Menczer, & Flammini, 2017). The tool calculates a probability score to indicate whether an account belongs to a human or a bot. Figure A1 shows the distribution of Botometer scores in the form of a density plot. A total of 361 accounts could not be analyzed because they had either been removed, had been set to "private," or had never produced a tweet (Keller & Klinger, 2018). The threshold for being a bot was set conservatively at 0.76 (Keller & Klinger, 2018)—that is, users with scores above this threshold were classified as bots.

Surprisingly, many accounts were labeled as bots, given their high Botometer scores (59,567 accounts with a probability greater than 76%) or even the more conservative CAP scores (55,233 accounts with a probability greater than 50%). The intersection of both scores revealed that 55,233 accounts had a high probability of being automated accounts.

Undertaking a closer look at these bots, this finding points to the difficulty associated with the use of bot-detection tools: Bots account for 56% of all followers and 20% of friends but only 1% of active accounts. This indicates that bot accounts did not enter the political debates and were inactive during the fall session in 2018. Most of the active bots (N = 130) seldom tweeted (median = 2), indicating that despite the display of bot-like behavior, false positives were returned in this case. These were accounts that produced only a few tweets. Only two accounts were very active: one focused on US politics and the other one on pictures and videos of animals and landscapes. That is, although numerous accounts did receive a high probability score, suggesting that they were bots, these were mostly inactive accounts, and the few active bots did not engage in political debates. Thus, bots did not affect the political debates during the fall session in 2018.

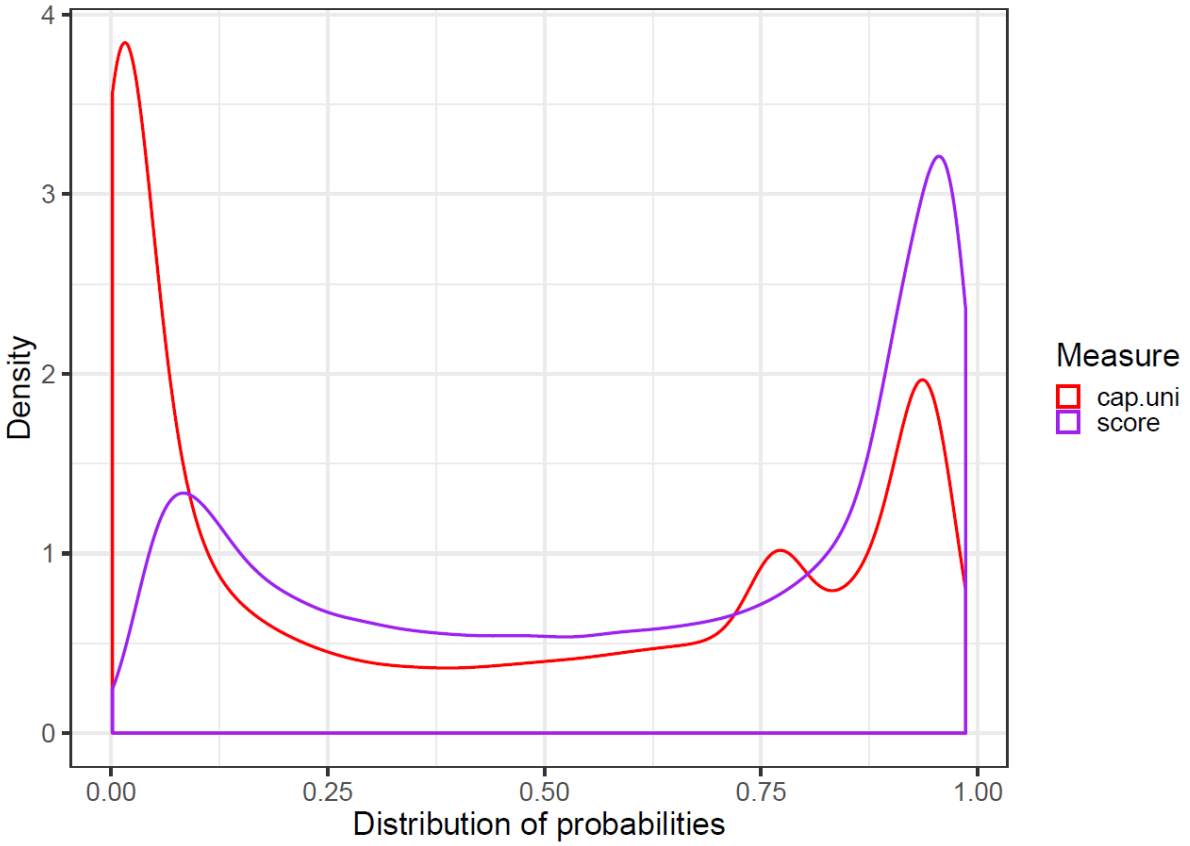

Figure A1. Distribution of the Botometer scores/CAP scores of the identified accounts.

Note. N = 128.342, bandwidth = nrd0

B. Summary statistics of the automated classification

The automated analysis classified 51% (36,243 accounts) of all accounts with either a description or a URL. The analysis could classify only 33% of all users retweeting an MP and 38% of users replying to an MP, but 68% of MPs addressed users in outgoing replies and 64% in outgoing retweets.

Table B1.

Summary Statistics of the Automated Classification

	Total users (unique)	*With description or URL*	*Automatically classified*
Followers	117,393	59,996 (51%)	32,683 (54%)
Friends	29,909	24,867 (83%)	11,801 (47%)
Incoming Replies	2,506	1,991 (79%)	760 (38%)
Incoming Retweets	2,821	2,246 (80%)	749 (33%)
Incoming Mentions	4,976	4,120 (83%)	1,742 (42%)
Outgoing Replies	396	366 (96%)	248 (68%)
Outgoing Retweets	1,033	993 (96%)	636 (64%)
Outgoing Mentions	1,510	1,452 (96%)	897 (62%)
Outgoing Likes	1,843	1,732 (94%)	1,073 (62%)
N	*129,063*	*70,589*	*36,243*

C. Comparison between hierarchical and nonhierarchical classification

Twitter users may fall into multiple groups. For example, one MP is a journalist and the CEO of a media outlet. Although it is interesting to compare how individuals represent different groups, in order to clearly categorize users into one group, the results were classified hierarchically (from top to bottom), following previous research (Spierings et al., 2018).

The largest difference resulting from the hierarchical classification occurred for the category of social bots (-9%). While many inactive accounts were labeled as bots and belong to followers, they could also be classified into other categories. The hierarchical classification also led to almost 4% fewer citizens. However, because almost all individual groups encompass citizens, this makes the results clearer. The difference of almost -3% of non-MP political accounts is based on the latter refinement of the political categories: The keywords of executive politicians and political parties were still included in the list of non-MP political accounts, which is why they were counted twice in the nonhierarchical classification.

Table C1.

Comparison of Automated Classification Results Based on Multiple Classification and Hierarchical Classification Processes

	Nonhierarchical	*Hierarchical*	*Difference*
MPs	141 (0.39%)	141 (0.39%)	0 (0%)
Executive politicians	793 (2.19%)	788 (2.17%)	5 (0.01%)
Political parties	125 (0.34%)	123 (0.34%)	2 (0.01%)
(Non-MP) political accounts	1,869 (5.16%)	939 (2.59%)	930 (2.57%)
Media accounts	185 (0.51%)	183 (0.5%)	2 (0.01%)
Journalists	6,044 (16.68%)	5,782 (15.95%)	262 (0.72%)
Social organizations	755 (2.08%)	650 (1.79%)	105 (0.29%)
Private industry	2,845 (7.85%)	2,419 (6.67%)	426 (1.18%)
Board members	1,293 (3.57%)	850 (2.35%)	443 (1.22%)
Scientists	4,275 (11.8%)	3,329 (9.19%)	946 (2.61%)
Satire and celebrities	15 (0.04%)	9 (0.02%)	6 (0.02%)
Citizens	3,702 (10.21%)	2,278 (6.29%)	1,424 (3.93%)
Spam and advertisements	92 (0.25%)	69 (0.19%)	23 (0.06%)
Social bots	21,912 (60.46%)	18,683 (51.55%)	3,229 (8.91%)
N (unique)	*36,243*	*36,243*	

D. Additional Network Analysis

I used the Louvain algorithm in Gephi to identify the communities that guide the analysis of the reply network structure. The red cluster on the right side accounts for 26% of the entire network, the green on the left 11%, and the blue in the middle the remaining 63%.

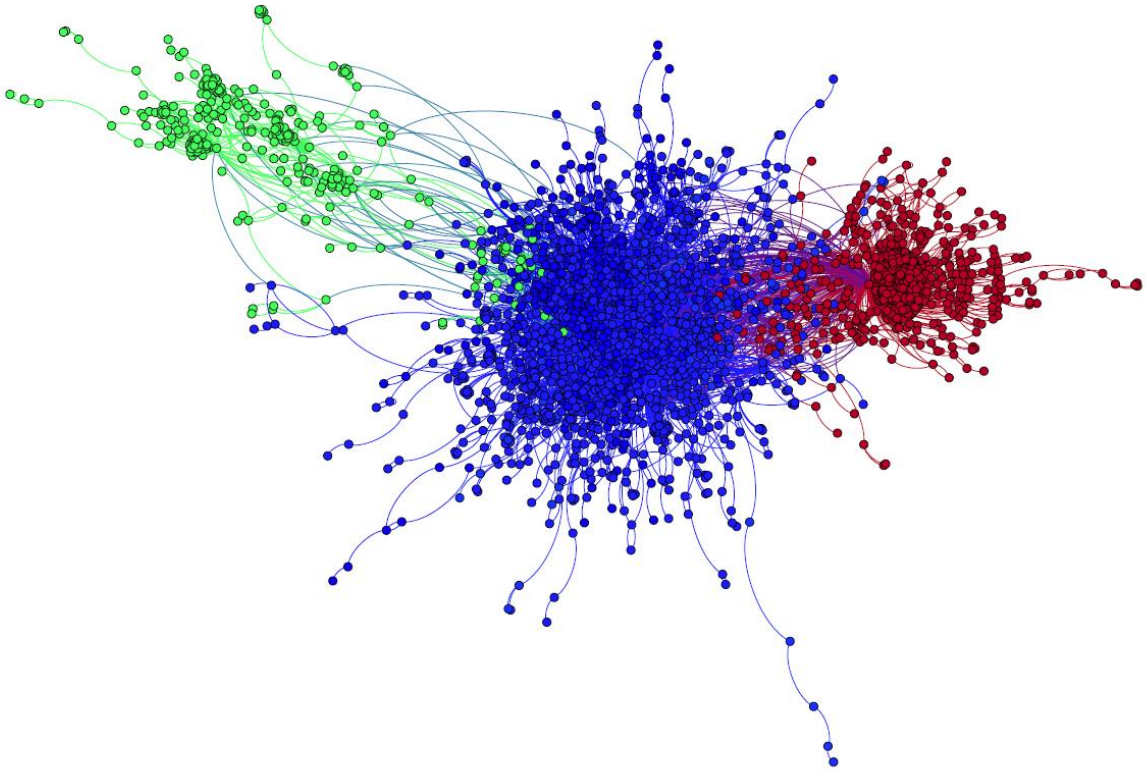

Figure D1. Three clusters in the reply network.

Note. The network shows only the center of the graph, which was created using the "ForceAtlas 2" algorithm in Gephi.

The reply network's cluster structure remains robust, even when only journalists and MPs are included (see Figure D2).

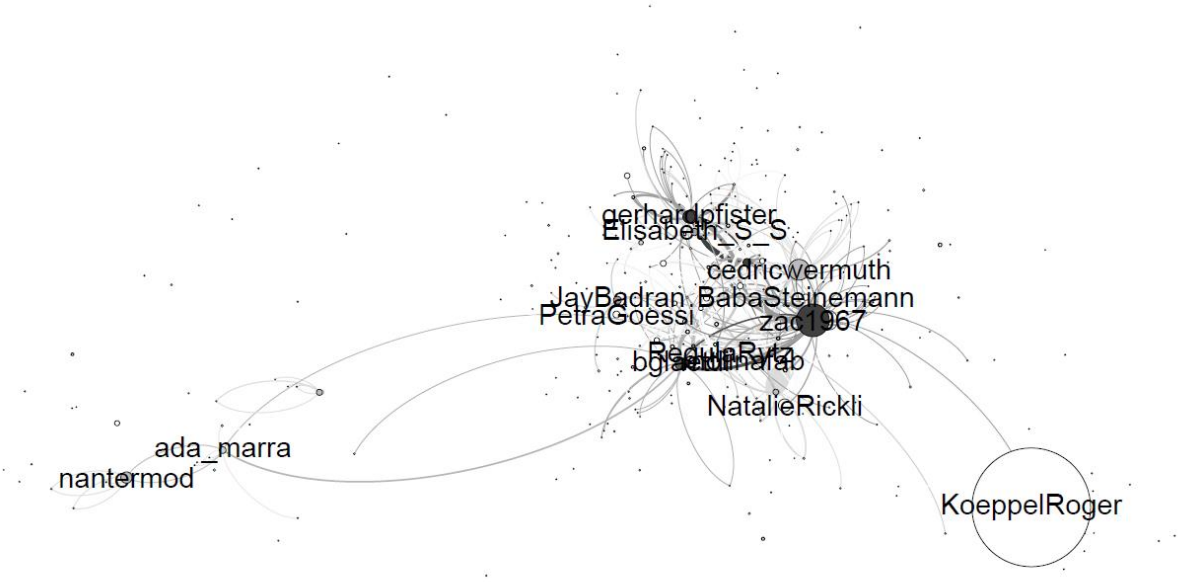

Figure D2. Reply network of MPs and journalists during the fall session of 2018.
Note. Twitter screen names are shown only for MPs with an indegree (incoming replies) that is larger than or equal to 30 and an outdegree (outgoing replies) that is larger than or equal to 10. The larger the node, the greater its indegree, and the darker the node, the greater its outdegree. The network shows only the center of the graph, which was created using the "ForceAtlas 2" algorithm in Gephi.

Overall, no cluster of the reply network had extraordinarily more contact with people further away from the political system than any other. Although numerous replies were sent from MPs to other MPs and other political accounts close to the political system (red), journalists (green), lay citizens (dark blue), and others (e.g., pink refers to social movements and private industry) are also a vital component of each cluster (see Figure C2).

The retweet network shows a similar picture to the reply network but with three notable differences (see Figure C3): First, although Roger Köppel (SVP) again has his own cluster (the large one on the very left), Claudio Zanetti (SVP) is closer to his party colleague (the smaller cluster in the middle) than to the cluster on the right side. Due to their similar ideological positions, they possibly attract a similar audience who retweets them. Second, the other cluster now consists of the French-, Italian-, and German-speaking MPs. While MPs hardly replied to

the Francophone MPs, they retweeted them more often. Perhaps it is easier for them to retweet tweets in other languages than to reply in a different language. Third, the reply cluster on the right side is dominated by users close to the political system (red), while Köppel's (and, to a lesser degree, Zanetti's) cluster is far less dominated by them. Although many accounts were not analyzed (marked gray in the figures), the two SVP MPs retweeted and were retweeted by more lay citizens than the other MPs. Overall, the retweet network differs from the reply network in that the former has no clear distinction by language but, rather, is distinguished by Roger Köppel, Claudio Zanetti (both right-wing members of the right-wing party SVP), and the rest. This might indicate that the outer right-wing MPs detach themselves from the others, while the others continue to engage in retweeting across party lines (including MPs from right-wing parties).

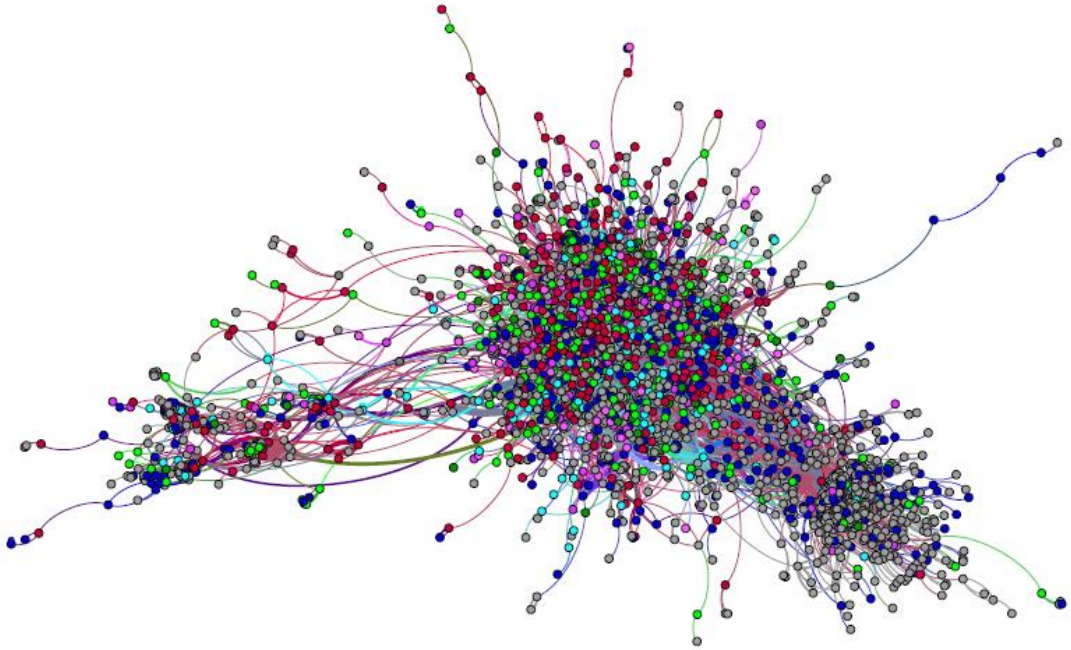

Figure D3. Reply network of Swiss MPs on Twitter during the fall session in 2018.
Note. Red = MPs and other groups close to the political system; green = media and journalists' accounts; light blue = board members, scientists, and celebrities; pink = social movements and private industry; dark blue = lay citizens; and gray = accounts not analyzed.

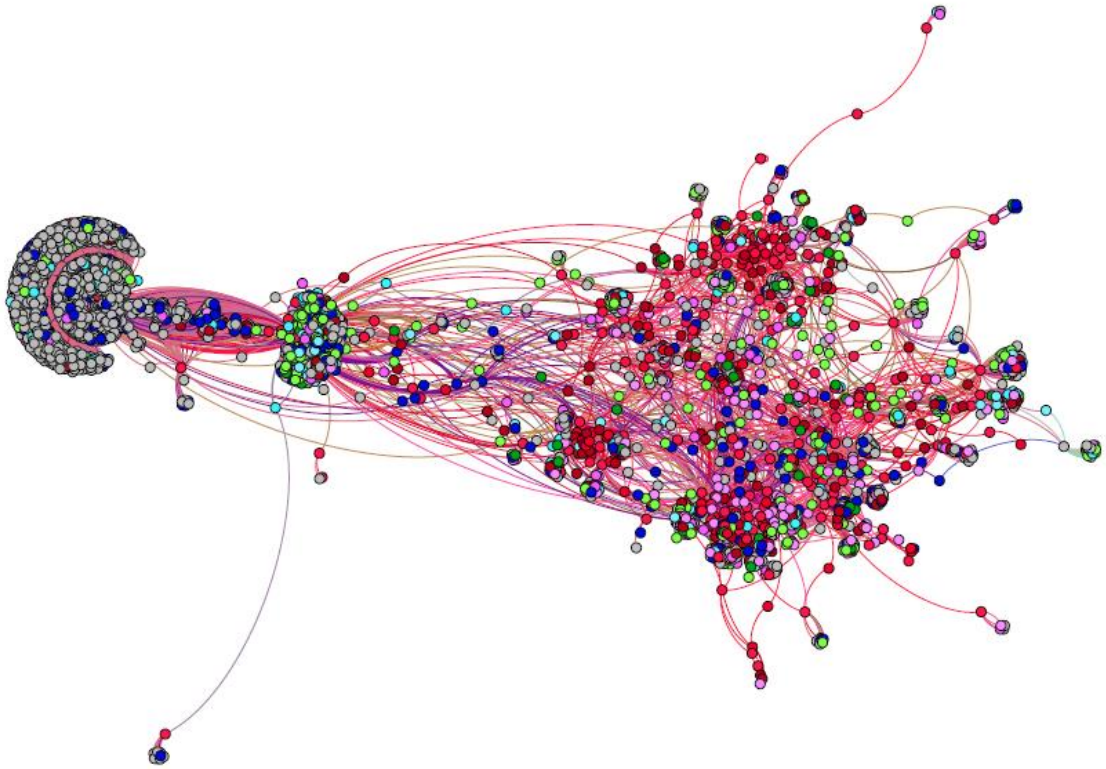

Figure D4. Retweet network of Swiss MPs on Twitter during the fall session in 2018

Note. Red = MPs and other groups close to the political system; green = media and journalists' accounts; light blue = board members, scientists, and celebrities; pink = social movements and private industry; dark blue = lay citizens; and gray = accounts not analyzed.

Study 2: Politcians' Communication Styles

Pseudo-Discursive, Mobilizing, Emotional, and Entertaining: Identifying Four Successful Communication Styles of Political Actors on Social Media during the 2015 Swiss National Elections

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Abstract

Political actors are adapting their communication styles to the network media logic of social media platforms with varying success. This study investigates the communication styles used during the Swiss national election 2015 and their success in triggering digital reactions. In a quantitative content analysis of the "top 20" most reacted to messages on Facebook (n = 2170) and Twitter (N = 1796) of 246 Swiss parliamentarians and 11 parties we analyzed the impact of a pseudo-discursive, mobilizing, emotional and entertaining communication style. Whereas the pseudo-discursive style is the most common on both platforms, it leads on Facebook to fewer interactions. The entertaining style fosters reactions on Facebook but not on Twitter. Though the emotional style is used the least, it is the most beneficial. The paper concludes by discussing how these four communication styles alter communication between political actors and citizens.

KEYWORDS: Political communication, Facebook, Twitter, social media, Switzerland, quantitative content analysis

Political actors have embraced social media platforms as a promising way of circumventing traditional gatekeepers to reach citizens directly. But how do they communicate on these platforms? Do they try to engage their followers in serious debate, or do they simply aim to entertain them? And how successful are these new styles of communication in motivating citizens to react to politicians' activities on various social media platforms? From the perspective of network media logic (Klinger & Svensson, 2015, 2016), this quantitative study investigates which communication styles political actors used on social media platforms during the 2015 Swiss national election and how these styles fostered digital reactions on Facebook and Twitter.

Previous research shows that discussions between political actors and citizens on social media platforms are rare (Kalsnes, 2016), and if they do occur, they seldom constitute deliberation (Wessler, 2008). However, citizens very commonly react to politicians' public messages (e.g., public Facebook posts or tweets on Twitter) with a like, share, comment, or retweet, mirroring the general user habits on these platforms (Puschmann & Peters, 2014). These reactions, even without a response from the political actor, have the potential to spread messages virally through the network (Klinger & Svensson, 2015).

Political actors seek to obtain as many of citizens' reactions to their posts and tweets as possible for three main reasons. First, on social media platforms, such as Facebook, a large number of reactions increase the likelihood that political actors' posts will be seen by their followers and fans because of the algorithm that organizes the news stream (whereas on Twitter, most tweets are shown in the order in which they were sent (van Dijck, 2013)). Second, each reaction from a fan or follower to a political actor's post or tweet further circulates the post through the fan's or follower's network. These networks are likely to include citizens with similar interests and political positions and who are comparatively likely to be persuaded by the politicians' posts to become fans themselves. Third, exposure to a politician's tweet has

been shown to have strong effects on voting intentions (Kobayashi & Ichifuji, 2015) and political participation (Dimitrova, Shehata, Stromback, & Nord, 2014).

Therefore, this study explores whether political actors have successfully adapted to network media logic by using styles of communication that generate the maximum number of reactions. Although network media logic is an established theoretical concept, few studies have explored its impact on political actors' communication styles. In our empirical study, we thus focus on the content of political actors' public social media messages and the digital reactions they generate.

We investigate the use of the following four distinctive communication styles that are particularly well suited to network media logic (Klinger & Svensson, 2015): pseudo-discursive, mobilizing, emotional, and entertaining. We conducted a quantitative content analysis of the posts and tweets of all 246 elected members of the Swiss Parliament that received the most reactions on Facebook (N = 1,796) and Twitter (N = 2,170). These posts and tweets received the most reactions between six months before and ten days after the 2015 Swiss national election, and the purpose of choosing them is to identify how successful the aforementioned communication styles are in provoking reactions.

Political Actors on Social Media Platforms

Previous studies on the behavior of political actors on social media platforms have found that most of them fail to exploit the interactive potential of Web 2.0 platforms; they mainly broadcast information (Filimonov, Russmann, & Svensson, 2016; Graham, Broersma, Hazelhoff, & van 't Haar, 2013) and rarely debate with users. They use such platforms in a Web 1.5 manner (Jackson & Lilleker, 2009): Regardless of how lively citizens' comments on their posts may be, political actors seldom respond, let alone engage in a serious exchange of thoughts or opinions.

These findings are often framed negatively based on the normative expectation that political actors should embrace this chance to debate with citizens. However, previous research has shown that politicians lack the resources (such as time or a social media team) to cope with the flood of comments on social media; they fear losing control over the communication situation, which might trigger offensive online behavior and negative media attention, particularly because their original statements may become more politically controversial with the ensuing discussions (Coleman & Blumler, 2009; Stromer-Galley, 2000). Furthermore, citizens are not used to receiving responses from political actors, which means that politicians are not punished for restricting themselves to top-down communication and thus do not feel obliged to respond to citizens' comments (Tromble, 2016).

Nevertheless, Facebook and Twitter users themselves also shy away from discussions on these platforms. About 90% of online communities consist of lurkers who read other members' posts but do not comment on or react to the posts (Schneider, Krogh, & Jäger, 2013). For these reasons, even the widespread adoption and use of important social media platforms, such as Facebook and Twitter, have not led to more public debates between political actors and citizens.

As political actors do not want to spend many resources when responding to comments, and users—most of whom are lurkers—do not strongly demand conversation, the one-sided communication from political actors provokes one-sided responses from users. We argue that these digital reactions (e.g., likes, comments, retweets, etc.) by fans on Facebook and followers on Twitter are a better reflection of users' general social media habits than the expectation of vibrant public political debates.

A like on Facebook does not remain a simple sign of acknowledgement (Larsson, 2015); the liked post also spreads through the network of the one who liked it. The same applies to other reactions, such as a comment or share on Facebook or a like, retweet, or reply on Twitter. Although these may represent different *qualities* of interactions between politicians and

citizens, we consider them all to be reactions because they all increase the visibility and reach of the original public messages within the networks.

If multiple users react to a post or tweet, the original message can go viral (Klinger & Svensson, 2015) and reach even those people who are not fans or followers of the political actor who wrote it (Vaccari & Valeriani, 2015). Depending on individual users' habits and on Facebook and Twitter newsfeed algorithms, not all fans and followers will see all the posts a friend reacted to, but the larger is the overall volume of reactions, the higher are the chances that they will (Karlsen & Enjolras, 2016).

Studies of politicians and parties that rely heavily on social media platforms—and thus on their potential to spread posts and tweets virally—have highlighted the impact of successful communication on these platforms (e.g., Casero-Ripollés, Feenstra, & Tormey, 2016). Especially in combination with other media, such as television, the potential of these platforms can be exploited to achieve political success (Chadwick, 2013). Mere exposure to a politician's tweet has been found to generate a more positive attitude toward the political actor (Kobayashi & Ichifuji, 2015). Previous experiments have found that tweets have a more positive impact compared with newspapers or television coverage: exposure to politicians' tweets heightens citizens' feeling of social presence, which leads to a favorable impression and stronger voting intention (Lee & Jang, 2013; Lee & Shin, 2014).

The use of social media also has a stronger effect on political participation than the use of online news sites, party websites (Dimitrova et al., 2014), and websites without social information has (Margetts, John, Hale, & Yasseri, 2016). Therefore, political actors are eager to spread their posts and tweets to as many citizens as possible, particularly throughout the networks of their fans and followers, where their messages are more likely to fall on fertile ground (because these networks tend to consist of like-minded peers; see Klinger & Svensson, 2015). As political actors are interested in triggering as many digital reactions as possible with their public messages, we define the success of posts and tweets as the total number of reactions.

Political Actors' Communication Styles on Social Media Platforms

Political actors have historically adjusted their communication strategies, of which communication styles are an important part, to traditional media logic to ensure that journalistic gatekeepers include them in their reporting and that they reach a large audience (Altheide & Snow, 1979). While these gatekeepers are absent on social media platforms, politicians nevertheless face substantial obstacles to achieving their goal of reaching "maximal attention" (Klinger & Svensson, 2015, p. 1247). Because of the vast number of posts and tweets on social media platforms, a popularity score, which is reflected in, for example, the number of fans, likes, or retweets, moderates the visibility of an actor and his/her posts while enabling him/her to spread messages (van Dijck & Poell, 2013). Thus, social media communication needs to be adapted to network media logic (Klinger & Svensson, 2015, 2016). That is, political actors need to adjust their communication styles to platforms' unique characteristics and to the expectations and motivations of their users in order to reach their target audience via (many) reactions to their posts and tweets. *Focusing on the successful social media contributions of political actors*, we therefore pose our first research question, which is as follows: *To what degree do political actors use four possible social media communication styles (pseudo-discursive, mobilizing, emotional, and entertaining) on Facebook and Twitter?*

The two platforms differ in their user community, as well as in their users' motivations for using the platform and for reacting to social media contributions. Facebook is the largest social network site in Western society (Newman, 2017). Its user community encompasses slightly more younger than older Internet users, but due to its enormous size, it represents Internet users better, overall, than any other platform does (Gruzd, Jacobson, Mai, & Dubois, 2018; Kovic, Rauchfleisch, Metag, Caspar, & Szenogrady, 2017; Pew Research Center, 2016). By contrast, in many countries, such as Switzerland, for example, Twitter users are a more specific community: they tend to be younger, better educated, and more media savvy; they oftentimes belong to a political or economic elite or to the media sector, and they commonly

use Twitter in a professional capacity (Davis, Holtz-Bacha, & Just, 2017; Metag & Rauchfleisch, 2016; Pew Research Center, 2016). In other countries, such as in the UK, it is used by a broader population (Graham, Jackson, & Broersma, 2014). To our knowledge, however, in most countries, the user community of Twitter is not as representative of the general population as that of Facebook is. Users' motivations and expectations differ, as well: Facebook use is mostly determined by the desire to belong and the need for self-presentation (Nadkarni & Hofmann, 2012); correspondingly, digital reactions on social network sites are mainly explained by the need to be a part of a group (Ho & Dempsey, 2010). By contrast, Twitter use is explained by the need for news and for tracking real-time events (Stieglitz & Dang-Xuan, 2012). It is often used by journalists to observe political actors and gather quotes and information for their articles (Parmelee, 2014). Tweets are shared (retweeted) to amplify a message or to publicly agree with someone (boyd, Golder, & Lotan, 2010). The general use of Facebook and Twitter and the reactions to posts and tweets are thus triggered by quite different motives. The success of the messages posted by political actors on both platforms, i.e., whether these messages will reach as many people as possible by being spread via digital reactions, seems to strongly depend on the fit between the message and the motives of the platform users. Our second research question therefore explores how *the four aforementioned communication styles differ between Facebook and Twitter*.

Pseudo-discursive communication style

Given the interactive potential of social media platforms, their rise sparked the hope that political actors and citizens would use them to debate political issues as they did on the Athenian Agora (e.g., Coleman & Blumler, 2009). However, empirical research has found that political actors' proclamations on the potential for debates on social media platforms are mostly symbolic (Jungherr, 2016). In practice, cyber-rhetoric is common (e.g., Stromer-Galley, 2014), i.e., the debates tend to be staged by political actors and their close supporters to help spread

their message. For the most part, traditional top-down communication dominates: social media platforms are used as just another website to disseminate information. Politicians' use of Web 2.0 platforms in such a Web 1.0 manner has christened the term "web 1.5" style of use (Jackson & Lilleker, 2009). However, political actors are aware of the discourse potential of these platforms, as well as the democratic hopes and expectations connected to them (e.g., Enli & Skogerbø, 2013). Responding to citizens on these platforms can lead to substantial goodwill and to positive responses (Lee & Shin, 2012; Tromble, 2016). Yet political actors shy away from public online interactions because of time constraints or their fear of losing control (Kalsnes, 2016; Stromer-Galley, 2000). Thus, we argue that they use certain communicative elements to make it at least look as though they are willing to engage in public debates on these platforms, i.e., they use a pseudo-discursive communication style.

For instance, they address other political actors or journalists in their posts. As the addressed person will be notified of this, opportunities for debate are created; even more importantly, doing so signals a willingness on their part to enter into a political discourse. In reality, however, mentioning other politicians is most often used as a form of negative campaigning (Druckman, Kifer, & Parkin, 2010). Political actors might also address the media directly to deliver quotable statements, especially on Twitter, or to try and set the media agenda (Jungherr, 2016; Parmelee, 2014). They respond and comment to media coverage to correct or spin the news in their favor (Lischka, 2017). Political actors may also address citizens in their posts and tweets to ask for feedback or support, attempting to get a better feel of their concerns and opinions in order to win their votes (Jungherr, 2016).

Given the different user structures (the general public on Facebook vs. a high proportion of professional users on Twitter) and usage motivations (need to belong vs. observe news and political actors), we expect the demand for the pseudo-discursive style to be higher on Twitter. Additionally, we assume that this style is more appreciated by users on Twitter in the form of digital reactions than on Facebook.

H1a: The pseudo-discursive communication style is found more often on Twitter than on Facebook.

H1b: The pseudo-discursive communication style leads to more digital reactions on Twitter but not on Facebook.

Mobilizing communication style

Social media platforms offer politicians a very useful channel for their mobilization attempts, which were previously mostly limited to interpersonal canvassing and restrained by their financial resources. Free social media platforms with a large user community are thus used extensively to mobilize for protests, national elections, and other events (Bennett & Segerberg, 2012; Bond et al., 2012). A mobilizing post or tweet can consist of a call for action, such as a reminder of an upcoming national referendum or election (e.g., 'Vote for the social democrats!', 'Don't forget to vote!', or 'It is your decision—go vote!'). It can also encompass the key points of why people should vote for a specific politician or party (e.g., supports green energy, lowers taxes, or fights for more social security) and thus reinforce the importance of casting one's vote. These reminders may not only activate those using social network sites for political reasons (Gil de Zúñiga, Jung, & Valenzuela, 2012) but also convince past non-voters to vote, especially if they receive the message from a friend, for example, via a share or a like (Baek, 2015). These calls for action can be decisive in a tight race: citizens who receive a mobilizing message are reminded of their civic duties and are more likely to vote. This effect is comparable to those of traditional get-out-the-vote tactics (Teresi & Michelson, 2015) and also influences offline participation (e.g., Vissers & Stolle, 2014). Another way of mobilizing is to include calls for digital action, such as likes and retweets. We expect that users do their part and react to a message when a political actor they follow publishes a mobilizing post or tweet.

As Facebook has a larger user community (5.24 million Swiss users) than Twitter has (1.42 million Swiss users), we assume that politicians will focus their mobilization efforts on

the platform where these efforts are likely to reach more citizens. We also expect this to lead to more digital reactions because of the larger secondary audience on Facebook than on Twitter.

H2a: A mobilizing communication style is more often found on Facebook than on Twitter.

H2b: The mobilizing communication style leads to more digital reactions on Facebook but not on Twitter.

Emotional communication style

Political actors have historically used emotions to make their communication to the public more effective and persuasive, particularly on platforms without gatekeepers. Political communication has long involved public displays of emotion (Richards, 2004). Social media platforms invite an emotional communication style: they have no professional gatekeepers imposing the use of a more professional language; posts and tweets are expected to be composed quickly using authentic and informal language. Although users do turn to social networks for information, emotional motives also play a major role (Nadkarni & Hofmann, 2012). Correspondingly, previous research has already pointed out that emotional messages are more likely to go viral (Dobele, Lindgreen, Beverland, Vanhamme, & van Wijk, 2007).

An emotional communication style is characterized by posts and tweets that focus more on emotions than on political issues: they are more concerned about conveying an emotional state than an issue. That is, they can contain information on political issues, such as immigration, but they try to persuade citizens by focusing on the emotions connected to these issues, such as fear (e.g., connecting immigrants to crime rates or lowering taxes to unemployment). This emotional framing of political issues is one reason why populist parties' messages can persuade citizens and make their parties successful (Wirz, 2018). Another less political way of focusing on emotions is the use of (phatic) expressions; for example, a cheering political actor might tweet, "Thank you so much for all your votes! I love you all!" (Miller,

2008). Emotions are often shown online with emoticons or emojis, which are understood by the recipients as clarifying the message intent (Thompson & Filik, 2016). Therefore, emoticons also signal an emotional communication style.

As political actors adjust their communication style to the platform involved, they should use an emotional style more often on Facebook than on Twitter because of Twitter users' higher interest in news-like information. Nevertheless, as emotions can cause a message to go viral independent of the platform involved, we expect that the emotional style used leads to more digital reactions on both platforms.

H3a: An emotional communication style is more often found on Facebook than on Twitter.

H3b: The emotional communication style leads to more digital reactions on both Facebook and Twitter.

Entertaining communication style

Political actors have long used entertainment as a tool to reach a broader audience. Hybrid television shows opened doors for political actors to inform and entertain at the same time (Blumler & Kavanagh, 1999). Politicians appear in late-night shows (e.g., *The Tonight Show*) and are frequently the subject of political satire shows (Kleinen-von Königslöw, 2013). Humor has become a part of their communication strategy: they use humor in their political ads and statements, and they appear in political comedy shows to be laughed at and to laugh *with* the host and the viewers. Furthermore, humorous content is particularly suited to social media platforms: it allows the easy posting of funny snippets from political actors' appearances in late-night shows or similar events, which can spread more easily through supporters' networks (Dobele et al., 2007).

But an entertaining communication style does not need to be humorous. A more conventional approach may be to use two forms of personalization: individualization and

privatization. By focusing on themselves (and not on the party as a whole or on political issues), political actors may aim to make their posts and tweets more accessible (individualization, van Aelst, Sheafer, & Stanyer, 2012). They might publish statements outlining their personal opinions or post pictures as they canvass in the streets. They may also include details from their personal lives to stress that they are normal citizens who lead normal lives (privatization, van Aelst et al., 2012). For example, they can show pictures or videos of themselves celebrating at a fair or in a beer tent. As previous research has shown, these forms of soft news are more often shared on social media platforms than hard news is (Imhof, 2015).

Political actors may choose to talk about everyday or currently popular non-political topics in order to appear more like a normal citizen. They may simply post a beautiful landscape or seasonal messages, such as "Best wishes from Lake Zurich" (so-called phatic communication, see Miller, 2008), to keep in touch with their followership. Such contributions will stand out among their more on-topic posts, but at the same time, these do not feel out of place to their social media audience, which sees many similar posts from their non-political friends.

We assume that we will find this entertaining communication style more often on Facebook than on Twitter because we expect political actors to have adapted their style to Facebook users' interest in entertaining posts (compared with Twitter users' expectations of more news-like information). Furthermore, we expect users to reward these entertaining posts more on Facebook, where they more closely correspond to the general tone of the platform.

H4a: An entertaining communication style is more often found on Facebook than on Twitter.

H4b: The entertaining communication style leads to more digital reactions on Facebook but not on Twitter.

Table 1. Four communication styles of political actors on social media platforms

Communication style	**Indicator**
Pseudo-discursive style	Addressing political actors
	Addressing journalistic actors
	Addressing citizens
Mobilizing style	Call for digital action
	Call for action
	Election
	National referendum
Emotional style	Emotionalization
	Emoticons
Entertaining style	Individualization
	Privatization
	Humor
	Non-political topics

These four communication styles might occur in different combinations. For example, the mobilizing style could be complemented with the emotional style to stress the importance of voting, or the pseudo-discursive style might be combined with some entertaining elements showing how a political actor is affected personally by an issue. While other combinations are possible, we focus on the ones that often occur together in the most successful posts. Therefore, our third research question is as follows: *Which combinations of communication styles occur most often in the most successful Facebook posts and tweets, and do they lead to more reactions?*

Methods

To address our research questions, we conducted a quantitative content analysis of the most successful social media posts of political actors in Switzerland. We chose Facebook and Twitter because they are considered the most important social media platforms for political communication in many Western democracies (e.g., Larsson & Kalsnes, 2014), especially in Switzerland (Authors, 2015). About 63% of the resident population of Switzerland (8.33 million) use Facebook, and about 17% use Twitter (Latzer, Büchi, & Just, 2015). For both

platforms, the user share is higher among the younger cohorts: among 14- to 19-year-olds, 79% use Facebook, whereas 24% use Twitter; the usage is even higher among 20- to 29-year-olds (FB: 88%, Twitter: 25%). In the older age brackets, the share of Facebook users is still rather high and consistently higher than that of Twitter users (for 30- to 49-year-olds, FB: 62%, Twitter: 16%; for 50- to 69-year-olds: FB: 43%, Twitter: 12%; for 70- to 84-year-olds, FB: 16% and Twitter: 11%) (Latzer et al., 2015). Whereas Facebook represents the broader Swiss public, Twitter can be considered more as a network for professional users, particularly journalists and politicians (Kovic et al., 2017; Metag & Rauchfleisch, 2016). However, it should be noted that not all of these users are Swiss citizens, as foreigners make up about a quarter of the total population of Switzerland (Federal Statistical Office, 2016). However, we assume that these foreigners are less likely to be among the followers and friends of Swiss political actors than their Swiss neighbors are and, more importantly, that Swiss political actors tailor their communication to the potential voters among their followers and friends. In fact, Swiss political actors consider these platforms to be increasingly important (Brändli & Wassmer, 2014). The country's political system of direct democracy leads to multiple referenda per year, encouraging permanent campaigning by political actors for which social media are a convenient, cheap, and useful tool to be close to voters continuously.

Sampling procedure. We searched Facebook and Twitter for the pages and accounts of all 246 elected members of the Swiss Parliament and all 11 parties represented therein; we identified 104 Facebook fan pages (41%) and 126 Twitter profiles (49%). With the aid of R and the packages Rfacebook (Barberá, Piccirilli, Geisler, & van Atteveldt, 2015) and twitteR (Gentry, 2015), we downloaded all their posts from six months before until ten days after the election (April 1, 2015 to October 28, 2015) in the first week of November 2015. Within this time period, there was also a national referendum on four issues (a federal law for radio and television, inheritance tax, reproductive medicine, and scholarships). On average, Swiss

political actors posted 88 Facebook posts (SD = 105, median = 51), drawing about 51 reactions per post (SD = 75, median = 25). Even with retweets excluded, politicians were more active on Twitter publishing, on average, 187 tweets (SD = 289, median = 75), yet they are receiving only 3 reactions per tweet, on average (SD = 3, median = 2). We took a sample of the top 20 posts of each actor on each platform (the ones that generated the most reactions in terms of likes, shares, and comments on Facebook and in terms of favorites and retweets on Twitter; posts with no reactions were excluded). Not all Swiss political actors published 20 posts or tweets in the election campaign which received at least one digital reaction: 24 Facebook users only posted between 2 and 19 posts, and 36 Twitter users posted only between 1 and 19 tweets, leaving us with a final sample of 1,796 Facebook posts and 2,170 tweets. Other studies have shown that the distribution of (politicians') online activity and popularity is heavily skewed with a long tail (Nielsen & Vaccari, 2013), with only a few political actors usually responsible for the majority of activities and reactions. Thus, not only the activity of politicians but also the number of reactions to their top 20 messages differs strongly, ranging on Facebook from 1 to 3,043 (mean = 143, median = 49) and on Twitter from 1 to 195 (mean = 13, median = 7). Although posts and tweets with only one reaction are not particularly successful, this range enables us to find differences in the impact of specific communication styles.

Measures. Our dependent variable is the number of digital reactions per post and tweet, respectively. The sums of all likes, comments, and shares and the sums of all likes and retweets were calculated for each post and tweet, as we were interested in determining which of them triggered any form of reaction (and thus increased their visibility on the platform) and not in identifying the type of reaction they triggered. Replies to tweets were ignored because they could not be downloaded with the package twitteR. Basing on previous research, we included the number of fans and followers (e.g., Heiss, Schmuck, & Matthes, 2018), whether the party

belongs to the ideological right or left wing (e.g., Gibson & McAllister, 2015; Larsson, 2014), and if the Facebook post or tweet had a picture in it (e.g., Bene, 2016) as control variables.

We developed a coding book to identify the differences in the communication styles used in the most successful posts and tweets. For the pseudo-discursive style, we coded whether the post/tweet addressed a political actor, journalist, or citizen. The mobilizing elements were calls for action, calls for digital action, or references to the national election and to the national referendum. For the entertaining style, we coded non-political topics, individualization, privatization, and humor. Finally, the emotional style consisted of emotionalized posts, as well as posts with emoticons (see Appendix A).

Three student coders with previous content analysis experience learned the codebook and were trained in five sessions. They received their sample in an Excel spreadsheet that contained the original Facebook post and/or tweet, including the URL, so that they can see the message on Facebook/Twitter in its original environment. They were instructed to base their coding decisions only on the content of the Facebook post and the tweet, respectively. The reliability test based on a coding of 10% of the sample showed satisfactory results: the variables for the pseudo-discursive style reached a Krippendorff's *alpha* of 0.71; mobilizing style, 0.9; emotional style, 0.89; and entertaining style, 0.78. The variables humor and addressing citizens were just below the established threshold, with a Krippendorff's alpha of 0.65. However, considering the high level of complexity of these two variables, we considered the achieved alpha values as just acceptable (see Appendix B).

Results

The pseudo-discursive style is used most commonly in successful public messages on Facebook and Twitter (75% of all messages, see Table 2). Politicians address one another to counter their arguments, thank citizens for their votes, or address journalists in order to comment on the latest news in over half of all posts and tweets that received the most reactions

(Facebook: 52%, Twitter: 53%). Whereas in Facebook posts, politicians also speak to citizens more often than they do on Twitter (39% to 29%), such as to thank them for their support or to appeal to them directly, journalists are more frequently addressed in tweets (16% to 9%) in the hope of triggering more media coverage or to spin the news in their favor. In sum, the pseudo-discursive style appears especially often on Twitter: in 79% of all successful tweets, a politician, journalist, or citizen is addressed (compared with 70% on Facebook, supporting H1a).

On Facebook, the entertaining style is found just as often as the pseudo-discursive style is (70% of all successful posts in the sample). The posts are often individualized, with a focus on single politicians (65%), they address non-political topics, such as sending best wishes for Easter or birthday greetings or giving comments on sports events (20%), and they less often contain privatization, i.e., information on politicians' private life (4%), or humor (3%); thus, they mirror the hybrid character of communication on Facebook. In the Twittersphere, it is also the second most frequently found communication style (47% of the successful posts in the sample, supporting H4a). Most of the entertaining tweets contain individualization (37%) or non-political topics, such as tweets about eating national dishes (14%); privatization and humor are, again, rare (1% and 3%, respectively).

Although the study period includes only two relevant dates for mobilization—the national referendum on June 14, 2015 and the national election on October 18, 2015—mobilizing posts and tweets are rather ubiquitous: 48% of the most successful posts on Facebook and 34% of those on Twitter contain a mobilizing element (supporting H2a). The most frequent mobilizing element was references to the national election (which include statements explaining why someone is running for office, reminders to vote, and public messages thanking people for all the votes after the election), with 40% on Facebook and 26% on Twitter. More specifically, calls for action offering arguments on why citizens should vote for the respective candidate/party are the second most frequent mobilizing element (17% on Facebook and 7% on Twitter). References to the national referendum are rarely found in the

most successful posts (4%) and tweets (5%), indicating that voters were focused on the national election. In addition, calls for digital action, such as sharing the post or tweet in one's own network, do not appear often in these Facebook posts (4%) or on Twitter (1%).

An emotional style occurs the least often on both platforms, which is 31% of Facebook posts and 20% of tweets (a total of 25% of all successful messages). The content of these posts strongly focuses on emotions instead of issues, especially on Facebook (30%) (Twitter: 19%, supporting H3a). For example, politicians accused their opponents of showing their ugliest side in a debate or emphasized a statement about human rights with several exclamation marks. Emoticons (6% and 4%) do not often appear in the posts and tweets in the sample. All Facebook posts and tweets contain at least one element of a communication style.

Table 2. Occurrence of media elements and pseudo-discursive, entertaining, mobilizing, and emotional communication style in the most successful public messages on Facebook and Twitter

	Facebook posts (%) (N=1,796)	***Twitter tweets (%) (N=2,170)***	***Total messages (%) (N=3,966)***	X^2
Media elements				
Text***	87	99	93,5	254
Picture***	53	30	40	216
Video***	5	1	3	54
Hashtag***	8	31	21	315.2
Link	41	42	41	0.1
Pseudo-discursive style* **	**70**	**79**	**75**	**40**
Addressing				
political actors	52	53	53	1.3
journalistic actors***	9	16	13	41.7
citizens***	39	29	34	42.9
Entertaining style* **	**70**	**47**	**58**	**219.4**
Individualization***	65	37	50	304
Privatization***	4	1	3	26,9
Humor	3	3	3	1.6
Non-political topics***	20	14	17	24.9
Mobilizing style* **	**48**	**34**	**40**	**84.8**
Call for digital action***	4	1	3	95.3
Call for action***	17	7	12	46.5
Election***	40	26	34	86.3
National referendum	4	5	4	1.3
Emotional style* **	**31**	**20**	**25**	**64.1**
Emotionalization***	30	19	24	58.4
Emoticons*	6	4	5	4.3

Notes. ***p < 0.001, **p < 0.01, *p < 0.05 (Chi-squared test). Communication styles summarize the subsequent variables below and are counted if at least one variable is present. All variables were dichotomized (present or not present). Numbers are rounded.

A cluster analysis for each platform revealed which communications styles are often combined. Whereas the pseudo-discursive style is often combined with an entertaining style on Facebook, the mobilizing style is often used with the emotional style in successful posts on both platforms (research question 3). That is, 59% (N = 1,740) of all pseudo-discursive messages contain entertaining elements, and 52% (N = 515) of all emotional messages contain mobilizing elements. These combinations illustrate the special communicative potential of these platforms: because politics is publicly visible in an environment where private, public, political, and entertaining elements collide, political communication has to adapt and stand out to achieve reactions. Discussions, combined with entertaining elements, represent a low-threshold opportunity for fans and followers to react. Combining mobilizing communication with emotion adds importance and urgency to the calls for political participation.

To determine which style produces the most reactions, we conducted a negative binomial regression analysis using the number of reactions as our dependent variable; the number of reactions per post/tweet is an over-dispersed count variable. The four negative binomial regression models showed a goodness of fit between 1.785 and 2.449 (Pearson chi-square), the omnibus test revealed significant likelihood ratio chi-squares between 719 and 1.548, and neither of the parameters' 95% confidence intervals included zero, suggesting over-dispersion, which supported the decision to conduct negative binomial regressions. As a robustness check, the models were also run separately for likes, comments, and shares on Facebook and for likes and retweets on Twitter, and no contradictory results were found (see Appendix C).

On Facebook, each additional 100 fans produce a 2.57% increase in the expected number of reactions (Exp(B) = 1.000257, SE = 0.000008, $p < 0.001$, see model 1 in Table 3), regardless of whether the message includes a picture or is posted by a wing party member. The entertaining style increases the number of reactions by 12.7% (Exp(B) = 1.127, SE = 0.048, $p = 0.026$), the mobilizing style by 33.8% (Exp(B) = 1.338, SE = 0.048, $p < 0.001$), and the

emotional style by 36.3% (Exp(B) = 1.363, SE = 0.051, p < 0.001, supporting H2b, H3b, and H4b). By contrast, the pseudo-discursive style has no significant impact (Exp(B) = 0.925, SE = 0.054, p = 0.149), thus rejecting hypothesis 1b.

In model 2, interaction effects are included for the often-combined communication styles (see Table 3). Neither the entertaining–pseudo-discursive style nor the mobilizing–emotional style has a significant impact on the number of reactions. Yet the mobilizing style still has robust positive main effects of 37.5% (Exp(B) = 1.375, SE = 0.058, p < 0.001) and, for the emotional style, 42.8% (Exp(B) = 1.428, SE = 0.075, p < 0.001).

Table 3. Estimating the impact of different communication styles of Swiss political actors on the number of social media reactions on Facebook during the 2015 national election

	Model 1: Facebook Exp(B) (SE)	***Model 2: Facebook Exp(B) (SE)***
Fans	1.000*** (0.000)	1.000*** (0.001)
Picture	1.022 (0.048)	1.023 (0.048)
Wing party	1.063 (0.047)	1.066 (0.047)
Pseudo-discursive	0.925 (0.054)	0.903 (0.088)
Entertaining	1.127* (0.048)	1.104 (.086)
Mobilizing	1.338*** (0.048)	1.375*** (0.058)
Emotional	1.363***(0.051)	1.428*** (0.075)
Pseudo-discursive*Entertaining	-	1.033 (0.105)
Mobilizing*Emotional	-	0.919 (0.1)
Intercept	30.75*** (.058)	30.77*** (0.067)
Goodness of fit (Chi-Square)	2.447	2.449
Omnibus test (Chi-Square)	1,548***	1,548***
95% Wald CI	0.794 and 0.897	0.794 and 0.897
N	*1,748*	*1,748*

Notes. ***p < 0.001, **p < 0.01, *p < 0.05 (negative binomial regression). Dependent variable: digital reactions. Odds ratios and standard errors are displayed.

On Twitter, the number of reactions increases by 1.07% per additional 100 followers (Exp(B) = 1.000107, SE = 0.000005, $p < 0.001$, see model 1 in Table 4). Uploading a picture also increases the number of reactions by 36.5% (Exp(B) = 1.365, SE = 0.044, $p < 0.001$). Of the four communication styles, only the emotional style stimulates reactions significantly (Exp(B) = 1.180, SE = 0.049, $p < 0.001$, supporting H3b but rejecting H1b). Whereas on Facebook, the entertaining and mobilizing styles *increased* reactions, on Twitter, entertainment (Exp(B) = 0.759, SE = 0.041, $p < 0.001$) and mobilization (Exp(B) = 0.904, SE = 0.042, $p = 0.015$) *decreased* the sum of reactions by a factor of 0.76 and 0.9, respectively (supporting H2b and H4b).

For model 2 in Table 4, the interaction effects between the mobilizing and emotional styles as the most common style combination were added to the model. The number of followers (Exp(B) = 1.000116, SE = 0.000005, $p < 0.001$) and a tweet containing a picture (Exp(B) = 1.375, SE = 0.044, $p < 0.001$) increase the number of reactions. The negative impact of the entertaining style also persists (Exp(B) = 0.752, SE = 0.041, $p < 0.001$). Mobilizing elements still hinder reactions by 14.2% (Exp(B) = 0.858, SE = 0.047, $p = 0.001$), and the emotional style is no longer significant (Exp(B) = 1.076, SE = 0.073, $p = 0.238$). However, the combination of these styles changes by 26.3% (Exp(B) = 1.263, SE = 0.098, $p = 0.018$), i.e., the decrease in reactions from a mobilizing tweet without an emotional element of 14.2% becomes 26.3% less negative when emotions are added.

Table 4. Estimating the impact of different communication styles of Swiss political actors on the number of social media reactions on Twitter during the 2015 national election

	Model 1: Twitter Exp(B) (SE)	***Model 2: Twitter Exp(B) (SE)***
Follower	1.000*** (0.000)	1.000*** (0.000)
Picture	1.365*** (0.044)	1.375*** (0.044)
Wing party	0.999 (0.039)	1.002 (0.039)
Pseudo-discursive	1.035 (0.047)	1.035 (0.047)
Entertaining	0.759*** (0.041)	0.752*** (0.041)
Mobilizing	0.904* (0.042)	0.858** (0.047)
Emotional	1.180*** (0.049)	1.076 (0.062)
Mobilizing*Emotional	-	1.263* (0.098)
Intercept	7.609*** (.054)	7.753*** (0.055)
Goodness of fit (Chi-Square)	1.785	1.789
Omnibus test (Chi-Square)	719***	725***
95% Wald CI	0.647 and 0.735	0.645 and 0.733
N	*2,170*	*2,170*

Notes. ***p < 0.001, **p < 0.01, *p < 0.05 (negative binomial regression). Dependent variable: digital reactions. Odds ratios and standard errors are displayed.

Discussion and Further Research

Analyzing four communication styles in the successful posts on social network platforms enhances our knowledge of how political actors adapt their communication to network media logic and prompt digital reactions (e.g., likes or retweets) from their fans and followers to spread their public messages. The dissemination of these messages exposes social media users to more posts and tweets from political actors, which, in turn, may influence their political participation and voting intention (Dimitrova et al., 2014; Kobayashi & Ichifuji, 2015). Although we found empirical support for all four communication styles among the posts and tweets most reacted to on Facebook and on Twitter, respectively, the usage and impact of these styles vary significantly.

The pseudo-discursive style is most commonly used in posts and tweets with the most reactions. However, although the posts and tweets include discursive style elements, political actors rarely follow up on them in their comment sections. This finding represents a neglected

opportunity for political actors to sharpen their political profile. Furthermore, despite its omnipresence, the pseudo-discursive style is not very successful at generating reactions: on Facebook, it appears to be the least successful of the four styles, whereas on Twitter, it is at least more successful than the emotional or mobilizing style in motivating users to react.

Even if cyber-rhetoric (Stromer-Galley, 2014), symbolic use (Jungherr, 2016), and Web 1.5 communication (Jackson & Lilleker, 2009) are common on these platforms, on the basis of on our results, the pseudo-discursive communication style should not be seen only in a pessimistic way: it might serve as the happy medium for political actors between *ignoring* and *reacting to all* input from other political actors, journalists, and citizens. In the long run, this pragmatic pseudo-discursive style may pay off for political actors by increasing their vote shares. Or other political actors might turn to a fully discursive communication style, particularly for newer political actors aiming to sharpen their profile, as British and Dutch Members of Parliament discussed with citizens during the 2010 election (Graham et al., 2013). The pseudo-discursive style should thus remain on our research agenda.

The second most often used communication style among the posts and tweets most reacted to consists of entertaining elements; individualized, privatized, and humorous posts and tweets or posts on non-political topics occur in more than half of all messages in the sample. The human side of a political actor, in particular, generates reactions on Facebook but not on Twitter. This result emphasizes the differences between social media platforms and how political actors need to adjust their communication styles to suit users' motivations in using a specific platform. Whereas entertaining elements as a part of one's self-representation are widely used and accepted on Facebook, they lower the number of reactions on Twitter because they do not correspond to the platform users' dominant need for news and live events.

In particular, posts and tweets focusing on individual politicians or containing private information about politicians, which are indicators of the entertaining communication style, are worthy of further investigation because social media platforms appear to increase the reach of

such public messages by political actors. Political actors use these posts and tweets to show their fans and followers that they are "like you and me." And if their message also contains a personal action frame (e.g., "We are the 99%") that users can identify with, users may be more willing to become politically active. They can modify the political actors' message to their own situation (e.g., by establishing a hashtag on Twitter) and share it in their network (Bennett, 2012), which will facilitate the spread of their general political message. Thus, scholars need to dig deeper into communication processes involving posts that individualize political actors.

The mobilizing style ranks third and occurs in 40% of the most successful posts. Calls for (non-)digital action and mentions of a national referendum or election activate fans and followers. During an election campaign, political actors need to mobilize their (online and offline) social networks. If their fans and followers share their call for action, the post or tweet may spread virally. Mobilization works on both platforms studied, but in combination with the emotional style, it works on Twitter only. Citizens thus respond to mobilization messages by playing their part on social media platforms. This is crucial for the success of political actions and makes these platforms an important tool to reach and mobilize their followership. Mobilizing posts on social media platforms might be able to compensate somewhat for the general decline in party membership by allowing political actors to mobilize people quickly outside traditional party channels.

The emotional style is used in only 25% of all posts and tweets in the sample, which might reflect how carefully Swiss political actors formulate their public messages. Fear of creating a scandal might prevent politicians from sending an emotional post or tweet. In some cases, emotional posts, even exaggerated or uncivil posts, can be a crucial part of one's political communication style. Although populist actors very successfully use emotional rhetoric (Wirth et al., 2016), in social media and beyond, this type of communication style is not the norm for Swiss political actors on social media platforms.

When the broader picture is analyzed, although only a marginal number of posts and tweets include emotional elements, they are a strong predictor of reactions on Facebook and Twitter, thus supporting the notion that emotions help a message go viral (Dobele et al., 2007). Thus, although the emotional style is used the least often of the four styles, it is the only one that consistently produced more digital reactions on both platforms.

Although we investigated only one country (cf. Methods), these results may be generalized beyond the Swiss case in a number of ways. In countries with a similar platform user structure, we expect to find similar differences in the prevalence of the communication styles between the two social media platforms (e.g., Austria and Sweden, see Ausserhofer & Maireder, 2013; Larsson & Moe, 2011). By contrast, in countries where Twitter is used by elites, as well as the broader population, the use of entertaining and emotional messages should be more similar on both platforms (e.g., Netherlands, the US, and the UK, see Graham et al., 2014; Tromble, 2016). Regarding the success of different communication styles, our results are more likely to be universal. In particular, the platform-independent success of emotional messages is probably due to general psychological mechanisms. However, to confirm this, we would need both comparative studies of the success of political communication styles, as well as more psychological studies assessing the underlying mechanisms that lead to reactions on social media platforms.

Future research should also explore how politically disinterested citizens perceive entertaining political messages. They might serve as a bridge to reach more than just the politically interested citizens who already follow politicians on social network platforms. This issue calls into question whether mobilizing messages have the same impact on politically disinterested readers who receive such messages only via their personal network as they do on people who are already following a political actor. We must also critically investigate the degree to which bots and other fake digital reactions might drive or prevent the true spreading of posts and tweets. As Twitter introduced the reply count at the end of 2016, this measure should be

included in future research. Additionally, our models only included those three control variables that were considered the most important in recent research; other personal or structural characteristics of politicians might also play a role and thus should be considered in the future. Finally, we encourage scholars to analyze why messages on these platforms sometimes receive no reactions.

All four successful communication styles adapted from established political communication in traditional media channels to network media logic enable digital readers to easily react to a post or tweet, which significantly changes what kinds of political messages social media users are exposed to, as well as how they perceive (and participate in) politics.

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Supplemental materials

Appendix A. Description of the variables coded by the student coders (Codebook)

This is a greatly reduced and translated version of the original codebook. The full codebook is available upon request.

Text: This was coded if the Facebook post or tweet contained text.

Picture: This was coded if the Facebook post or tweet contained a picture.

Video: This was coded if the Facebook post or tweet contained a video.

Hashtag: This was coded if the Facebook post or tweet contained a hashtag, but not if the #-symbol was used for something else (e.g., to curse or referring to a number).

Link: This was coded if the Facebook post or tweet contained a link to another website or social media platform.

Addressing political actors: This was coded if a political actor (politician or a party) was mentioned in the post or tweet, appeared in a picture, or is mentioned in the picture.

Addressing journalistic actors: This was coded if a journalistic actor (journalist, media organization etc.) is mentioned in the post or tweet, appeared in a picture, or is mentioned in the picture.

Addressing citizens: This was coded if citizens (citizen, you, the people etc.) are mentioned in the post or tweet, appeared on a picture, or mentioned in the picture.

Call for digital action: This was coded if the post, tweet or contained picture was a sentence/call to like the post, comment the message, or retweet this tweet.

Call for action: This was coded if the post, tweet or contained picture was a sentence/call such as "go to the ballot box and vote" or "come and join our demonstration on Sunday".

Election: This was coded if the post mentioned the national elections of the Swiss parliament 2015 in the post, tweet or picture.

National Referendum: This was coded if the post mentioned the national referendum in the post, tweet or picture.

Emotionalization: This was coded if, the focus in the post, tweet or picture was on emotions instead of an issue (e.g., pictures with cute animals, babies etc. or emotional outburst such as "I'm so grateful! Thank you so much!")

Emoticons: This was coded if an emoticon or emoji was used in the status or picture. For example, :-), ;-), :-P, ^^ etc.

Incivility: This was coded if a post contained swearing, multiple exclamation marks, or capitalization of specific words.

Exaggerations: This was coded if a post contained exaggerations to emphasize an issue (e.g., used superlatives or extremes).

Individualization: Individualization was coded if the political actor focused on his personal experience, spoke from his/her point-of-view, self-represented himself/herself on a picture.

Privatization: Privatization was coded if the political actor referred to his/her private life (e.g, hobbies, pets, family).

Humor: This was coded if a post contained humor in the message or the picture. Humor could occur in silliness, laughing at other people, or in resolving incongruity. The intention of the speaker was decisive, not if the joke/humor was actually funny.

Non-political topic: Each post was categorized into either focusing on a political topic or a non-political topic. Non-political topics were sports, culture, lifestyle, topics simply focusing on fear (crime) or fun (animals), landscapes, religion and others such as profile pictures.

An example for each communication style

Pseudo-discursive communication style

Translation: A question @SchaerWords: Why criticize the career of Regine Sauter and not of Hans-Ulrich Bigler?

Mobilizing communication style

Translation:

Picture: FOUR STRONG VOICES. Matthias Aebischer, Nadine Masshardt, Alexander Tschäppät, Flavia Wasserfallen. FOR A JUST SWITZERLAND.

Post: FOR A JUST SWITZERLAND. Ad campaign of SP Altstadt/Kirchenfeld. Already displayed on the Marzilibähnli. Next week everywhere. 18 October 2015 VOTE SP.

Entertaining communication style

Translation: It was beautiful!!!

Emotional communication style

Translation: Thank you so much for the 62.678 votes! I am very happy for the great confidence and it is pure energy for the new legislature!

Appendix B. Coding instructions

The three student coders received their sample in an Excel spreadsheet which contained the original Facebook post and/or the tweets including the URL to look at the message on Facebook/Twitter in its original environment. They were instructed to base the coding decision only on the content of the Facebook post and the tweet respectively.

Appendix C. Reliability measures (Krippendorff's *alpha*)

Table A. Reliability measures showing Krippendorff's *alpha* for each variable.

Variables	Krippendorff's *Alpha*
Text	1
Picture	1
Video	1
Hashtag	.97
Link	.93
Addressing political actors	0.7
Addressing journalistic actors	0.78
Addressing citizens	0.65
Call for digital action	1
Call for action	0.84
Election	1
National referendum	0.74
Emotionalization	0.77
Emoticons	1
Incivility	0.47
Exaggeration	0.54
Individualization	0.8
Privatization	0.9
Humor	0.65
Non-political topics	0.77

Appendix D. Regression models for each digital reaction indicator

As a robustness check negative binomial regression models were also calculated for likes, comments, and shares on Facebook (see Table B for the models excluding interaction terms and Table C for the models with interaction terms) and likes and retweets on Twitter separately (see Table D without the interaction terms and Table E including them).

For Facebook, the results remain largely the same when looking at individual indicators instead of the composite "reactions" (see Table 3 and Table B and C). Noteworthy exceptions are, first, the shares differ from the other forms of reactions in two ways: the pseudo-discursive and entertaining styles now have a significant (negative) impact, decreasing the likelihood of shares. This finding holds true even when their combination is included in the model. Compared to liking and commenting, sharing is the most expressive form of engagement with the post of a political actors (from the perspective of users, likes and comments are mostly aimed at the author of the posts, though they are also visible in one's personal network, whereas sharing is explicitly aimed at one's personal network and is the most visible). Apparently, users reserve this form of engagement to mobilizing messages (thus responding to the appeals contained in the messages). Second, comments are less likely for posts containing pictures (probably because photos simply do not need further commenting) and somewhat more likely for posts by wing-party (members) (an increase by 3 percent). We assume that posts of wing-party (members) contain more politically controversial content thus stimulating more comments. When additionally controlled for the combination of communication styles, users are less likely to comment on the pseudo-discursive communication style, probably because they are not the one being addressed in most cases (only in 633 out of 2,170 posts, whereas political actors are being addressed 1,145 times). The likelihood of commenting on a pseudo-discursive message increases, though, if it also contains entertaining elements, which possibly invite users to comment at least on the entertaining parts of the message.

Table B. Estimating the impact of different communication styles of Swiss political actors on the amount of social media reactions on Facebook during the 2015 national election

	Facebook: Likes Exp(B) (SE)	***Facebook: Comments Exp(B) (SE)***	***Facebook: Shares Exp(B) (SE)***
Fans	1.000*** (.000)	1.000*** (.000)	1.000*** (.000)
Picture	1.070 (.047)	.73*** (.075)	.942 (.085)
Wing party	1.076 (.046)	1.03*** (.075)	.925 (.085)
Pseudo-discursive	.940 (.053)	.957 (.087)	.756** (.096)
Entertaining	1.189* (.053)	1.128** (.085)	.767** (.092)
Mobilizing	1.298*** (.047)	1.305*** (.075)	1.595*** (.088)
Emotional	1.368***(.049)	1.858*** (.082)	1.07 (.090)
Intercept	23.14*** (.057)	2.05*** (.092)	5.76*** (.102)
Goodness of fit (Chi-Square)	2.061	4.863	2.610
Omnibus test (Chi-Square)	1541***	727***	838***
95% Wald CI	.753 and .853	2.402 and 2.768	1.831 and 2.139
N	*1,748*	*1,748*	*1,748*

Notes. ***p<.001, **p<.01, *p<.05 (negative binomial regression). Dependent variables: likes, comments and shares. Odds ratios and standard errors are displayed.

Table C. Estimating the impact of different communication styles of Swiss political actors on the amount of social media reactions on Facebook during the 2015 national election

	Facebook: Likes Exp(B) (SE)	***Facebook: Comments Exp(B) (SE)***	***Facebook: Shares Exp(B) (SE)***
Fans	1.000*** (.000)	1.000*** (.000)	1.000*** (.000)
Picture	1.077 (.048)	.751*** (.075)	.899 (.087)
Wing party	1.077 (.046)	1.286*** (.075)	.927 (.085)
Pseudo-discursive	.883 (.086)	.738* (.139)	1.071 (.156)
Entertaining	1.121 (.085)	.997 (.135)	1.067 (.152)
Mobilizing	1.325*** (.057)	1.286** (.090)	1.738*** (.105)
Emotional	1.414*** (.073)	1.822*** (.118)	1.238 (.137)
Pseudo-discursive* entertaining	1.098 (.103)	1.495* (.168)	.606** (.186)
Mobilizing*emotional	.942 (.098)	1.040 (.156)	.750 (.181)
Intercept	23.66*** (.066)	2.330*** (.109)	4.660*** (.114)
Goodness of fit (Chi-Square)	2.040	2.389	4.564
Omnibus test (Chi-Square)	1542***	843***	739***
95% Wald CI	.752 and .852	1.823 and 2.131	2.383 and 2.746
N	*1,748*	*1,748*	*1,748*

Notes. ***p<.001, **p<.01, *p<.05 (negative binomial regression). Dependent variables: likes, comments and shares. Odds ratios and standard errors are displayed.

For Twitter, the separate models again mostly confirm the results of the main model (see Table 4 and Table C and D). The one exception between the summarized "reactions" and the single indicator models regards the "retweets", which are not stimulated by the emotional style. This finding persists when controlling for the combination of the mobilizing and emotional style: Neither the combination with the mobilizing style nor the emotional style alone has a significant impact on retweets. Similarly as on Facebook, we assume that emotional elements on Twitter might be more often "appreciated" by liking it than stimulating a retweet or share to one's own network. That is, Twitter users appear to "like" that someone speaks out (what they might think themselves), but they do not want to spread the tweet as if they had said

it. In other words, they appreciate others being emotional, but do not want to appear emotional themselves.

Table D. Estimating the impact of different communication styles of Swiss political actors on the amount of social media reactions on Twitter during the 2015 national election

	Twitter: Likes Exp(B) (SE)	***Twitter: Retweets Exp(B) (SE)***
Follower	1.000*** (.000)	1.000*** (.000)
Picture	1.327*** (.048)	1.478*** (.048)
Wing party	.965 (.043)	1.054 (.043)
Pseudo-discursive	.990 (.051)	1.074 (.051)
Entertaining	.863** (.045)	.612** (.052)
Mobilizing	.924^{+} (.045)	.862*** (.053)
Emotional	1.358*** (.053)	.944 (.063)
Intercept	4.292*** (.059)	3.304*** (.069)
Goodness of fit (Chi-Square)	1.712	1.433
Omnibus test (Chi-Square)	633***	522***
95% Wald CI	.710 and .818	.961 and 1.121
N	*2,170*	*2,170*

Notes. ***p<.001, **p<.01, *p<.05 $^{+}$p<.1 (negative binomial regression). Dependent variables: likes and retweets. Odds ratios and standard errors are displayed.

Table E. Estimating the impact of different communication styles of Swiss political actors on the amount of social media reactions on Twitter during the 2015 national election

	Twitter: Likes Exp(B) (SE)	***Twitter: Retweets Exp(B) (SE)***
Follower	1.000*** (.000)	1.000*** (.000)
Picture	1.343*** (.048)	1.476*** (.057)
Wing party	.970 (.043)	1.053 (.050)
Pseudo-discursive	.990 (.051)	1.074 (.060)
Entertaining	.849*** (.045)	.613*** (.053)
Mobilizing	.845*** (.051)	.877* (.060)
Emotional	1.160* (.067)	.973 (.080)
Mobilizing*Emotional	1.471*** (.101)	.924 (.128)
Intercept	4.429*** (.060)	3.284*** (.070)
Goodness of fit (Chi-Square)	1.715	1.431
Omnibus test (Chi-Square)	646***	521***
95% Wald CI	.704 and .812	.961 and 1.120
N	*2,170*	*2,170*

Notes. ***p<.001, **p<.01, *p<.05 (negative binomial regression). Dependent variables: likes and retweets. Odds ratios and standard errors are displayed.

Study 3: Politicians' Success on Social Media Platforms

Followers, spread the message!

Predicting the success of Swiss politicians on Facebook and Twitter

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Abstract

Politicians have been criticized for not exploiting the deliberative potential of social media platforms. We complement previous definitions of politicians' success on social media through the lens of network media logic: Despite the lack of deliberation, some succeed in building large digital followerships, which spread their messages via reactions through the network. Analyzing a data set of personal, structural, and social media characteristics of Swiss politicians, we used path analysis to determine which predict their success on Facebook (n = 63) and Twitter (n = 108). Politicians, who are active in parliament, represent urban regions and receive substantial amounts of traditional media coverage also have larger digital followerships on both platforms. Digital followership in turn influences the average number of digital reactions on Facebook, but not on Twitter. Thus, politicians' success on social media depends on their personal background, political activity, and media coverage, and also their followership and the platform.

KEYWORDS: Facebook, Twitter, success on social media, political communication, Switzerland

The social media performance of most political actors on social media platforms cannot be called a success story. In interviews, they glorify the interactive potential of these platforms and promise to exploit it intensively in the near future (Brändli & Wassmer, 2014; Enli & Skogerbø, 2013), yet that is mostly what can be called cyber-rhetoric (Jungherr, 2016; Kreiss, 2011; Stromer-Galley, 2014). Instead, political actors use these Web 2.0 platforms to disseminate information in a Web 1.0 style, in what has been labeled a "Web 1.5" way of using these platforms (Lilleker et al., 2011).

However, this definition of "exploiting the potential of social media" may be too narrow. Previous empirical studies have shown that political actors may benefit from social media communication in other ways. Their posts might set the agenda of traditional media and thus improve visibility (Parmelee, 2014); their performance can attract new party members, substituting for the general decline in party membership (Gibson, Greffet, & Cantijoch, 2016); and the lowered transaction costs on these platforms might facilitate micro-donations through which political actors can raise millions (Margetts, John, Hale, & Yasseri, 2016). Through the lens of network media logic (Klinger & Svensson, 2015), we argue that the premise for all these beneficial outcomes is a large digital followership (e.g., fans or followers) that actively reacts to politicians' public messages (e.g., likes or retweets) and thus enables messages to spread through the network. Hence, the success of political actors' communication on social media should be defined as their ability to build a large digital followership and trigger as many reactions from their followers as possible.

But political actors do not enter digital ground on equal footing. Drawing on previous research, we assume that their social media success can be predicted by a set of personal (age, gender, education, party affiliation, ideology, parliamentary activity, urbanization of his/her constituency), structural (incumbency, key position, vote percentage, media coverage and financial resources), and social media (adoption date and activity) characteristics. Our main research question analyzes which characteristics of Swiss parliamentarians lead to success on

Facebook and Twitter in terms of followership and reactions. We use path analysis to examine a unique dataset of the social media communication of Swiss parliamentarians between 5 December 2011 and 15 March 2015 and their personal, structural and social media characteristics.

We start our paper with discussing what political actors' success on social media means from the perspective of network media logic (Klinger & Svensson, 2015) and why political actors benefit from a larger digital followership which actively reacts to their social media contributions. After identifying possible impediments to their success on these platforms, we describe the special case of Switzerland, our dataset and the methods. Then we present our results for the two platforms Facebook and Twitter. Finally, we put our findings in a broader context and discuss implications for future studies focusing on politicians' success on social media.

Political Actors' Success on Social Media

In research on politicians' performance on social media, scholars have focused on the discursive potential of social networks, i.e., the hope that political actors use social media to debate with citizens (Coleman & Blumler, 2009). Yet, political actors mostly use social media platforms like they use traditional media: they disseminate their information in a Web 1.0 style over these Web 2.0 platforms (known as a "Web 1.5" style of use, see Lilleker et al., 2011). It is not that they do not know about the potential for deliberation on these platforms. In interviews, they explicitly talk about this potential and their intention to engage in discussions with citizens on these platforms (Brändli & Wassmer, 2014; Enli & Skogerbø, 2013). They integrate these remarks about the potential of the internet and social media, the so-called cyber rhetoric (Jungherr, 2016; Kreiss, 2011; Stromer-Galley, 2014), into their communication. Often as not, their usage of these platforms only has a symbolic purpose (Jungherr, 2016): to show they are modern and close to the people. Thus, political actors strategically choose to use these

platforms in a Web 1.5 manner. Communication on social media platforms is still *from* political actors *to* citizens, and is less interactive than it could be.

Whereas according to the mass media logic politicians' messages must overcome gatekeepers to reach an audience, according to the network media logic politicians can directly disseminate their information to partisan citizens (Klinger & Svensson, 2015). Yet most political actors do not have a large digital followership that they can directly address (Vaccari & Nielsen, 2013), and their messages compete with a vast amount of other content on these platforms for visibility. To determine which content is visible, the number of reactions to a post or tweet indicates their popularity (van Dijck & Poell, 2013). The more reactions a post receives, the more popular it is, and the higher are the chances that it reaches more of a platform's users (Karlsen & Enjolras, 2016). That is, a political actor's post needs reactions such as likes, comments or shares on Facebook or replies, likes or retweets on Twitter in order to increase its visibility against competing content and to reach more than just their few fans and followers. Thus, network media logic asserts that political actors' social media success hinges heavily on users' reactions.

Yet scholars have critically debated the impact of "likes": The mere clicking on social media buttons – such as liking a politician on Facebook – has been dismissed in one strand of research as "clicktivism" and "slacktivism". An aimless digital reaction on its own was assumed to have almost no impact in the real world and might even prevent subsequent action for the cause, thus strongly differing from "real" activism (Skoric, 2012). However, another strand of research described it as a "legitimate political act" (Halupka, 2014, p. 130). Receiving a lot of "likes" can be part of a wider hybrid campaigning strategy that involves many additional communication tools (Karpf, 2010), and the "like" itself is not the end goal: It must be seen as part of an ongoing political process (Gerlitz & Helmond, 2013). One "like" often leads to another – and in rare cases even to hundreds of thousands – which can have serious political consequences (Margetts et al., 2016). Experiments showed that sharing a video increases

people's willingness to engage in offline helping behavior (Lane & Dal Cin, 2017) and that value alignment between the supporter and the cause as well as a strong connection to the organization combat slacktivism (Kristofferson, White, & Peloza, 2014).

We argue, furthermore, that such reactions determine whether communication on social media platforms is successful in five ways (see Table 1). First, reactions on platforms such as Facebook and Twitter are valuable to political actors because each reaction is visible to both the followers and their respective networks. Through these broader networks, political actors' messages can reach people who do not follow politics attentively (Vaccari, 2016). A large number of reactions might also lead to more media coverage, thus increasing both their online and offline visibility (Parmelee, 2014). Second, these reactions inform social media users about which of their friends on these platforms share similar political opinions; they might be invited to also follow certain political actors. Given the general decline in party memberships (Gibson, 2015), parties greatly benefit from facilitating a network of possible volunteers. Thus, a large and active followership might serve as an alternative to traditional forms of organization through party membership. Third, social media platforms lower the transaction costs and thus facilitate micro-donations, through which political actors sometimes raise millions; social cues – such as the number of people who have already donated – influence whether others also donate (Margetts et al., 2016). Fourth, exposure to political messages on social media influences voting intention (Kobayashi & Ichifuji, 2015) and political participation (Dimitrova, Shehata, Strömbäck, & Nord, 2014). Successful communication on social media (Gibson & McAllister, 2014) and many reactions on Facebook (Kovic, Rauchfleisch, Metag, Caspar, & Szenogrady, 2017) can lead to a higher vote share in elections or transform into large-scale participation such as in the Arab Spring (Margetts et al., 2016). While very few mobilization attempts succeed on such platforms, those that do may lead to unpredictable and extreme outcomes due to the dynamics of sharing on such platforms (Margetts et al., 2016). Fifth, the future communication of political actors on social media is driven by the amount and quality of

feedback they receive (Jungherr, 2016). There are multiple options for users to provide feedback: likes, comments, retweets, favorites and so on. By looking at the reactions to their messages, political actors are able to evaluate which arguments or pictures communicate their position most effectively, at little to no cost.

Hence, following these observations and according to the network media logic (Klinger & Svensson, 2015), the success of political actors' communication on social media platforms should be defined not by digital debates, but by the size of their *followership* (e.g., fans and followers) and the number of *reactions* their social media actions receive (e.g., likes, retweets).

Table 1. Five desired outcomes of a large and active digital followership on social media platforms

Indicator	**Desired Outcome**
Visibility	A large digital followership and many reactions increase an actor's visibility, which in turn can lead to more media coverage.
Organization	Due to the general decline in party membership, political actors might organize their followership via social media. Citizens are more often invited to participate in politics on social media platforms: They are being recruited as members, or being activated, i.e., to help out at events or attend demonstrations.
Micro-donations	Social media platforms lower transaction costs and facilitate micro-donations (e.g., money, time or ideas). Social cues influence whether someone donates or not.
Mobilization	Mobilizing members at the right moment is crucial for political outcomes. Since mobile devices can access various social media platforms, people are instantly notified and possibly mobilized.
Feedback	Thanks to a large and active digital followership, political actors receive feedback on their messages and can thus evaluate them. Future communication behavior is driven by the amount and quality of feedback.

Impediments to Success on Free Social Media Platforms

Most political actors use free social media platforms due to their low costs, their popularity among citizens and the ability to easily integrate features into their own websites (Jungherr, 2016). Few are able to build their own social network sites like "myBarackObama.com". Yet political actors face at least three general challenges in using these free platforms compared to a building their own proprietary platform.

First, most users did not initially join the platform in order to follow political actors. In contrast to a social network site like "myBarackObama.com", users of free platforms such as Facebook and Twitter might agree with the opinions of certain political actors, but may not want the people in their network to know this. Hence, political actors need to transfer their members from offline to online, and to attract new people with successful communication on these platforms. To find out how successful political actors have been in building a digital followership, there is a public indicator on most platforms such as the number of fans on Facebook or followers on Twitter, which may motivate additional users to join.

Second, there is a lack of control of these platforms compared to proprietary platforms. Due to their business models, political actors depend on possibly biased information about a platform, for example regarding the reach of paid posts. Due to stricter data sharing laws and stronger reservations concerning privacy outside the United States, it is almost impossible to confirm the success of micro-targeting attempts with data not provided by the platform itself, i.e. with independent data on concrete voting behavior. Regarding the reach of unpaid social media posts, political actors need to adjust their way of communicating to the platforms' algorithms and selection criteria to make their postings visible to as many as possible (Bene, 2016). They use messages in a personal tone to adapt to the platforms' style of communication, to show their followership that they are "like you and me" and thereby to increase the number of reactions to their posts (McGregor, 2017).

Third, although various platforms merge and influence each other, new platforms continue to be developed. Political actors cannot realistically engage on every platform; they must choose the ones that best fit the goals of their digital communication strategy. The user base varies by platform, so the communication strategy must be adapted accordingly. For example, about 50% of the population of Switzerland uses Facebook, and about 17% use Twitter passively and about 6% actively (Latzer, Büchi, & Just, 2015). Facebook thus represents the Swiss population more effectively than Twitter, the members of which mainly belong to the political elite or media organizations (Rauchfleisch & Metag, 2016). Politicians can most effectively reach other political actors and journalists via Twitter, and better address the general public using Facebook.

Normalized use – but also normalized success?

In addition to these challenges, political actors do not access social media platforms on an equal footing. Well-funded political actors and those with a strong presence in traditional media dominate digital political communication flows. Therefore, political communication continues to be "normalized" (Margolis & Resnick, 2000; Rauchfleisch & Metag, 2016). Previous research on the impact of politicians' personal and structural characteristics on their online political communication has focused mostly on the adoption of (and activity on) various platforms (e.g., Larsson & Kalsnes, 2014). The results of this focus are mixed, and most of them indicate normalization. Some of the discrepancies between results may be due to the use of different indicators for personal and structural advantages and different dependent variables (Strandberg, 2008, 2013). Therefore, we propose a set of personal and structural characteristics to systemize this field of research: Personal characteristics such as age, gender, education, party affiliation, and parliamentary activity are important predictors of platform adoption and activity, but structural characteristics such as incumbency, key position, vote percentage, media

coverage, and financial power are important for interpreting results in terms of normalization and equalization (Keller & Kleinen-von Königslöw, 2018).

Since for many political actors being active on social media platforms has become a necessary (although not sufficient) condition for political success (van Dijck, 2013), they have gained knowledge about how social media platforms work and how to generate digital reactions. Some of them have hired (external) community managers to improve their social media communication (Gálvez-Rodríguez, Haro-de-Rosario, & Caba-Pérez, 2017) or are early adopters and thus have more experience than newcomers in how to build up a followership and provoke reactions. Other political actors may be very prolific and post several times a day, creating a stronger social media presence. Therefore, it is unclear whether personal or even structural characteristics still play such a crucial role in success on these platforms. For our analysis, we distinguish between personal, structural, and social media characteristics to find out which predict success (i.e., digital followership and reactions) on these platforms. Our research question explores: *Which characteristics of political actors lead to success on Facebook and Twitter?*

Personal characteristics predict the use of social media platforms very well in the Swiss population (NET-Metrix, 2014). Younger members of the Swiss Parliament from urban regions are more likely to have adopted Twitter early and to actively tweet on the microblogging service (Rauchfleisch & Metag, 2016). Because users of these platforms probably feel better represented by members of parliament who are of a similar age and engage in similar social media behavior, we expect that younger members of parliament from urban regions attract a larger followership. Additionally, we assume that politicians who actively submit parliamentary proposals win more fans and followers on these platforms since they can report on their parliamentary efforts, which might help explain why many users follow politicians on these platforms. Therefore, we hypothesize:

H1: a) *Younger members of parliament who b) actively submit parliamentary proposals and c) represent urban regions attract a larger digital followership on Facebook and Twitter.*

Although political actors disseminate information in a Web 1.0 style, most have a steadily rising number of digital fans (Klinger, 2013). The distribution of followers among politicians is usually heavily skewed; for example, while few politicians in the U.S. midterm elections had over 100'000 followers, most of them only had a few 1000 (Vaccari & Nielsen, 2013, p. 209). We assume that political actors with structural advantages such as incumbency, vote percentage, key position, media coverage, and financial resources have more fans on social media platforms than structurally disadvantaged ones, since these advantages may lead to greater popularity, professional support, and to more statements they can recycle on their page. We assume that structural characteristics explain in a normalized fashion why some political actors have built a larger digital followership than others.

H2: *Structurally advantaged political actors have a larger digital followership on Facebook and Twitter than structurally disadvantaged ones.*

Building a large followership does not on its own reflect how successfully political actors perform on the platform. Politicians depend on reactions such as likes or retweets, which enable their public messages and tweets to spread through the network, to compete against the vast number of other public messages and extend their visibility beyond their followership. While personal and structural characteristics should influence who attracts more fans and followers, it seems less likely that they have a strong impact on the success of individual posts and tweets. For example, whereas a politician's age or key position might influence the one-time decision of a citizen to "like" or "follow" her on the platform, for daily decisions of which posts or tweets to like or retweet, social media characteristics such as adoption date and activity are more likely to predict the number of reactions politicians receive. These two social media

characteristics function as indicators of politicians' experience on these platforms; we expect that the more experience they have gained on these platforms, the more reactions they will receive on their Facebook posts and tweets on Twitter. That is, members of parliament who joined the platform early and actively post public messages probably know better how to provoke reactions. Additionally, those with a larger followership generally reach more people, which makes it more likely that they will receive more digital reactions (Casero-Ripollés, Feenstra, & Tormey, 2016). Therefore, we hypothesize:

H3: *Early adoption and active use lead to more reactions on Facebook and Twitter.*

H4: *The larger the digital followership of a political actor, the more digital reactions the actor receives, on average, on Facebook and Twitter.*

Method

Our case study focuses on political actors in Switzerland, which serves as an ideal case for studying success on social media platforms in a hybrid media system (Chadwick, 2013) due to its media and political plurality (246 members of parliament from eleven parties in 2015, for media plurality see Appendix A). The country's political system further encourages permanent campaigning (Norris, 2003) and permanent contact between political actors and the citizenry: Swiss citizens are invited to participate in direct democracy at the ballot box multiple times a year (e.g., four times in 2016). Furthermore, every four years citizens elect the members of the two chambers with a list on which they can add or remove people from their canton; they are even allowed to put a name twice on a list. Hence, political actors are in constant competition for attention. These instruments of direct democracy make Switzerland a special case (Rauchfleisch & Metag, 2016) and might contribute to politicians' success on social media as the latter need to continuously campaign and citizens need to continuously keep informed as part of their civic duty. In countries with other political systems – less permanent campaigning

and fewer instruments of direct democracy – politicians might have more difficulties in winning a large followership which reacts to their social media postings.

Politicians also differ starkly in their personal and structural characteristics. Since Switzerland's parliamentarians are not full-time professional politicians, permanent campaigning needs an easy-to-handle and not resource-intensive solution to connect to the public. Therefore, social media platforms are very appealing to them. A survey of Swiss political actors showed that Facebook and Twitter are of growing importance (Brändli & Wassmer, 2014), for example political actors' adoption rates of Twitter steadily rose from 2.5 percent in 2009 to 13.5 percent in 2011 to 34 percent in 2013 (Rauchfleisch & Metag, 2016, p. 2422). In our data collection of 2015, 108 (44 percent) of the 246 members of Swiss parliament used Twitter and 63 parliamentarians (26 percent) used Facebook pages.

Data was collected for all members of the Swiss Parliament using R (R Development Core Team, 2017) and the packages "Rfacebook" (Barbera, Piccirilli, Geisler, & van Atteveldt, 2016) and "twitteR" (Gentry, 2015). All pages, posts, and counts of reactions were automatically downloaded from the beginning of the 49th legislation period (5 December 2011) on 15 March 2015: this included 63 parliamentarians' Facebook pages with 14,264 posts and 108 Twitter accounts with 54,385 posts. This timeframe allows us to analyze how political actors in Switzerland used social media platforms to build a digital followership that actively spreads their messages during a non-election period. Despite the growing importance of permanent campaigning (Norris, 2003), these periods between elections have mostly been neglected in research (Vaccari, 2016). There are two dependent variables: *Digital followership* is the count of fans on Facebook and followers on Twitter as of 15 March 2015. *Digital reactions* is the average of the sum of *likes*, *comments*, and *shares* on Facebook and of *favorites* and *retweets* on Twitter for the study period. The *replies* on a tweet could not be retrieved via twitteR.

Similar to Larsson and Kalsnes (2014) we differentiate in our study between politicians' personal and structural characteristics, but add also social media characteristics as well as important predictors identified in other studies (such as education). The personal characteristics *age*, *gender*, *education,* and *party affiliation* are drawn from the official website of the Swiss Parliament (Bundesamt für Statistik, 2015; Parlamentsdienste, 2015). The *ideology* of political actors is ranked on a scale from -10.0 (left) to +10.0 (right) based on Schoenenberger (2014). A ranking of *parliamentary activity* for each political actor was retrieved from Parlamentsdienste (2015) and the degree of *urbanization* of their constituency from BADAC (2001).

The variables for the structural advantages *incumbency*, *key positions*, and *vote percentage* were collected via the official website of the Swiss Parliament (Bundesamt für Statistik, 2015; Parlamentsdienste, 2015). *Media coverage* is based on a search for each member of parliament in 54 print, 37 online, and 16 television news outlets and three news agencies covering all three national languages during the 49th legislation using the online archives of the media outlets (see Appendix A). *Financial resources* corresponds to the number of paid ads in 65 news outlets adapted from a study by Bühlmann, Gerber, Salathe, and Zumbach (2015). The two platform-specific variables are *adoption*, which represents the number of days since the account was created and the first post was published, and *activity*, which describes the number of posts per day during the legislative period.

We first report descriptive results to allow readers to form an impression of the success of Swiss politicians' social media communication. We then conduct a path analysis based on negative binomial and multiple linear regression analysis (see for additional information Appendix B) to find out which characteristics lead to a larger digital followership and more digital reactions in line with our proposed hypotheses. We also conducted regression analysis for each type of reaction (likes, retweets etc.) separately as a robustness check (Appendix C).

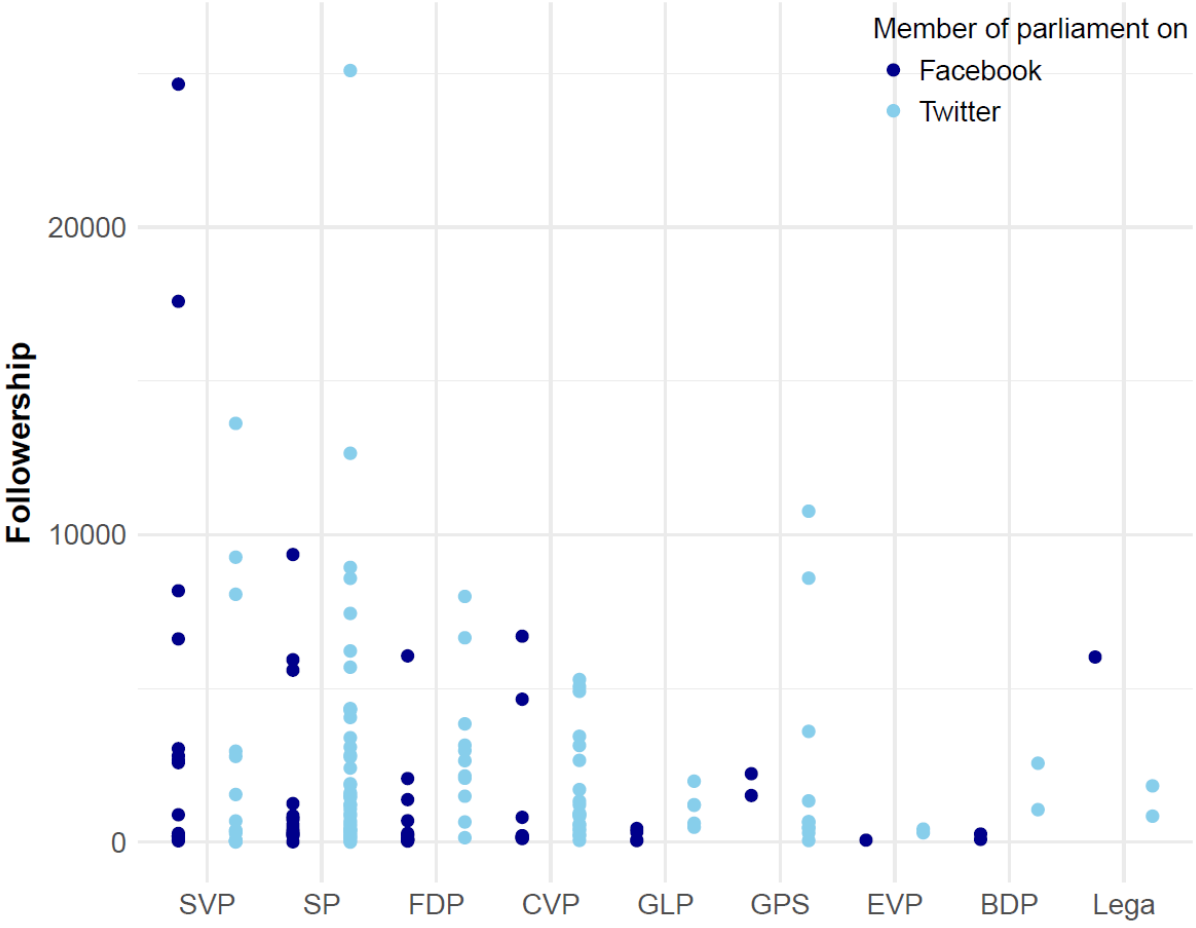
Results

In Switzerland, the success of politicians' performance on social media is mostly an outlier phenomenon (see Figures 1 and 2). Almost every party has a few politicians who attract many times the number of fans or reactions compared to others.

The 63 Facebook accounts analyzed have an average digital followership of 2,106 (*SD* = 529, median = 286). Oskar Freysinger of the right-leaning SVP party acquired the most fans on Facebook (24,466), followed by his colleague from the same party, Natalie Rickli, who had 17,596. Lukas Reimann (8,178) and party leader Toni Brunner (6,613), both SVP, also curate popular Facebook sites. Among the exceptional performers are not only political actors from the largest right-leaning party: Cédric Wermuth of the left-leaning party SP (9,359) and the leader of the centrist party CVP Filippo Lombardi (6,700) also reach many citizens.

Although Twitter is a niche social media platform in Switzerland, the average followership of the 108 political actors who use this platform is even higher than on Facebook with 2,533 followers (*SD* = 488, median = 345), which illustrates the importance of Twitter in political communication in Switzerland. Whereas right-leaning accounts dominate on Facebook, in the Twittersphere political actors from the left have a larger digital followership: Cédric Wermuth (SP) had the most with 25,105 followers, followed by SP Party leader Christian Levrat (12,650), Balthasar Glättli from the Green Party (10,768), Jacqueline Badran (8937, SP), Bastien Girod (8589, Green), and Pascale Bruderer (8581, SP). Of the right-leaning parties, Natalie Rickli (13,625, SVP) and Christoph Mörgeli (9270, SVP) have built up large followerships on Twitter.

Figure 1. The size of followership on Facebook and Twitter of Swiss members of parliament

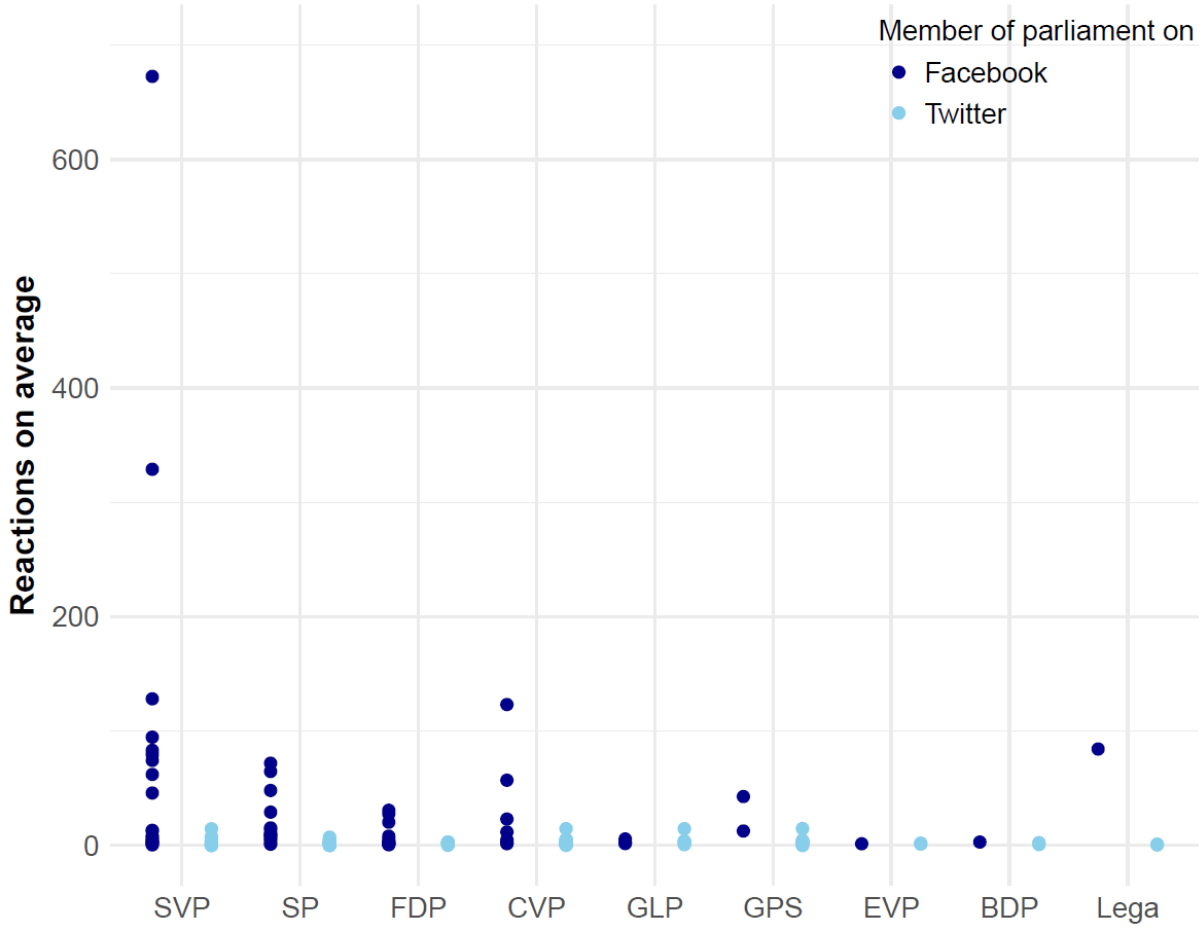


Note. Every dot represents a member of parliament, grouped by party affiliation. Followership indicates the number of fans on Facebook and followers on Twitter.

A Facebook post receives on average 38.2 likes, comments, and shares (*SD* = 12, median = 8.1). Again, Oskar Freysinger (672.7, SVP) leads the chart, followed by Natalie Rickli (328.9, SVP) and Lukas Reimann (128.1, SVP). In this SVP-dominated platform, Guillaume Barrazone of the centrist party CVP (123.2) is a noteworthy exception.

Four political actors receive the most reactions per tweet: Daniel Vischer (14.7, Green), Kathrin Bertschy (14.5, Green Liberal), Pirmin Bischof (14.4, CVP), and Oskar Freysinger (14.3, SVP). Following by quite a distance with around seven reactions per tweet are Christoph Mörgeli (7.3, SVP), Alfred Heer, (7.2, SVP) and Pascale Bruderer (7.2, SP). Political actors receive on average 2.3 reactions per tweet (*SD* = 2.8, median = 1.5).

Figure 2. Average number of reactions that Swiss members of parliament receive on their Facebook posts and tweets on Twitter



Note. Every dot represents a member of parliament, grouped by party affiliation. The number of reactions is the average of likes, comments and shares per post on Facebook and favorites and retweets per tweet on Twitter.

We conducted path analysis based on negative binomial (for the number of followers) and multiple linear regression (for the average number of reactions) analysis to determine which personal, structural, and social media characteristics explain the success in terms of digital followership and digital reactions.

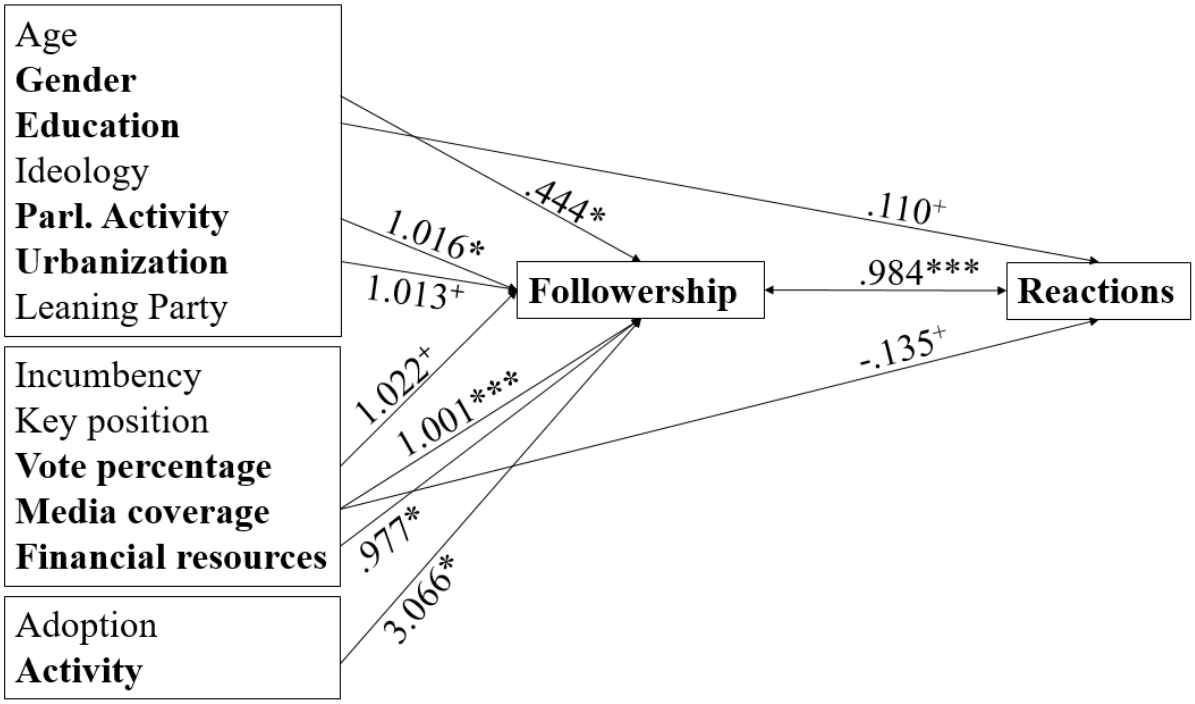
Seven characteristics predict the size of the followership on Facebook (see Figure 3): Younger politicians did not win more followers on Twitter (Exp(B) = .990, SE = .019, p = .574, rejects H1a). Yet supporting H1b and H1c, politicians from more urban regions have 1.3% more

fans (Exp(B) = 1.013, SE = .007, p = .074), and each parliamentary submission increases the size of the followership by 1.6% (Exp(B) = 1.016, SE = .006, p = .012). Additionally, male politicians win more fans (Exp(B) = .444, SE = .326, p = .013).

Of the structural characteristics, a one-unit increase in vote share raises the number of fans by 2.2% (Exp(B) = 1.022, SE = 0.12, p = .073), and each presence in a news article leads to an increase of 0.1% (Exp(B) = 1.001, SE = .000, p < .001) (supports H2 on Facebook). Yet, an increase in financial resources leads to a decrease in the followership by a factor of 0.98 (Exp(B) = .977, SE = .011, p = .028, diminishing support for H2 on Facebook). Of the social media characteristics, only activity explains the size of the followership: Those who increase their posting activity on average by one post per day raise the expected number of fans by an extraordinary 306.6% (Exp(B) = 3.066, SE = .506, p = .027, supports H3 on Facebook).

In turn, digital reactions correlate the strongest with the number of digital fans (*b* = .984, SEM = .001, p = .000; model 2: R^2 = .892, adjusted R^2 = .858; support for H4 on Facebook). Whereas a strong media presence leads to more fans, it hinders the average number of digital reactions (*b* = -.135, SEM = .13, p = .072). Other structural characteristics do not appear to influence the number of reactions on Facebook. Of the personal characteristics, higher education leads to more digital reactions, on average (*b* = .11, SEM = 11.16, p = .067). In contrast to our expectations, none of the social media activity characteristics affects the number of reactions on Facebook (rejects H3 for Facebook). The reduced model (only significant variables included in the path model) does not change R^2 significantly (change in R^2 =.020, p = .718).

Figure 3. Path analysis of Swiss politicians' characteristics predicting success on Facebook



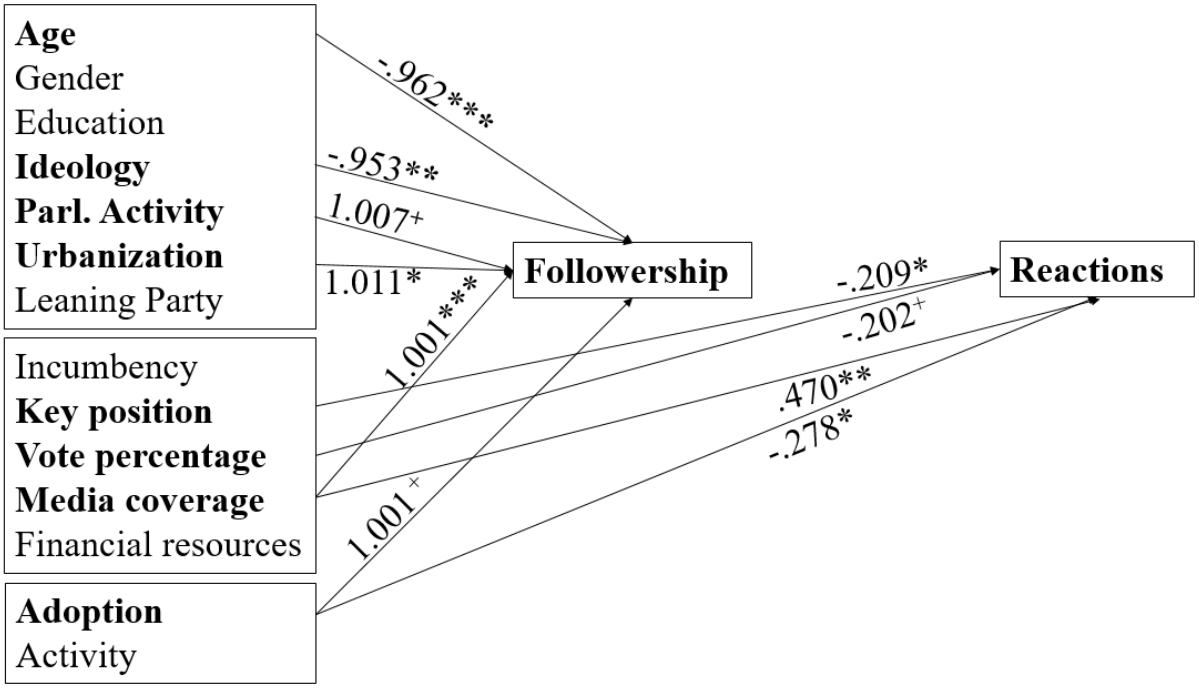
Note. *** p < .001, ** p < .01, * p < .05, + p < .1, N = 63. Negative binomial regression for DV Followership: Only significant odds ratios are displayed. Linear regression analyses for DV Reactions (adjusted R^2 = .858): Only significant standardized beta coefficients are displayed.

On Twitter, six characteristics predict the number of followers (see Figure 4): Younger politicians (Exp(B) = .962, SE = .010, p < .001), left-leaning politicians (Exp(B) = .953, SE = .016, p = .003), those who actively submit parliamentary proposals (Exp(B) = 1.007, SE = .004, p = .053) and those representing an urban region (Exp(B) = 1.011, SE = .004, p = .007) won more followers (supports H1a, H1b, H1c). Additionally, each mention in a news article increases the number of followers by 0.1% (Exp(B) = 1.001, SE = .000, p < .001, support for H2 on Twitter). Finally, for each day earlier that a politician adopted Twitter, there is a 0.1% increase in the his or her followership (Exp(B) = 1.001, SE = .000, p < .001).

Personal, structural, and social media experience variables have little impact on the average number of digital reactions (model 4: R^2 = .269, adjusted R^2 = .150). Users are more likely to react to politicians who are structurally disadvantaged in terms of key positions (*b* = -.209, SEM = .237, p = .043) and a low vote share (*b* = -.202, SEM = .018, p = .062), but who

receive a lot of media coverage (*b* = .470, SEM = .001, p = .001). Contrary to expectations, late adopters are favored with more reactions (*b* = -.278, SEM = .001, p = .011, rejects H3 on Twitter). More followers also do not lead to more digital reactions on Twitter (rejects H4 on Twitter). As for the reduced Twitter model, R^2 does not change significantly when only the significant variables were included (change in R^2 = .057, p = .501).

Figure 4. Path analysis of Swiss politicians' characteristics predicting success on Twitter



Note. *** p < .001, ** p < .01, * p < .05, + p < .1, N = 108. Negative binomial regression for DV Followership: Only significant odds ratios are displayed. Linear regression analyses for DV Reactions (adjusted R^2 = .150): Only significant standardized beta coefficients are displayed.

Discussion

This study contributed with a unique dataset of personal, structural, and social media characteristics of the members of the Swiss Parliament to enhance understanding of politicians' varying degrees of success on social media platforms. We argue that political actors' social media success should be evaluated not (only) based on their interactions and political debates with citizens, but on the size and activity of their digital followership – which potentially lead

to greater visibility, low-effort organization and low-threshold recruitment, more micro-donations, better-timed mobilization and illuminating feedback for future communication strategies, and to potentially large-scale social movements.

Three personal characteristics increased politicians' chances of attracting a larger digital followership. Confirming our first hypothesis, younger politicians who actively submit parliamentary proposals are more popular on social media platforms, presumably because users expect politicians to be engaged, and active politicians are more interesting to follow. Furthermore, those who represent citizens from an urban region also become popular on these platforms. We assume that this is due to the sociodemographic characteristics of the user base of these platforms: Members of parliament who resemble the users of a platform (younger, urban) might find it easier to enlarge their network. Future studies should investigate the fit between the sociodemographics of a platform's users and the politicians seeking to attract them, how the content of more and less active politicians differs, and the expectations of citizens who follow politicians on social media.

On both platforms under investigation, Facebook and Twitter, the structural advantage of high levels of media coverage best predicts social media success (H2 confirmed). First, citizens "like" and "follow" political actors who are often covered by traditional media. Second, media coverage is key for digital reactions on both platforms – but in different ways. Media coverage directly leads to more digital reactions on Twitter. On Facebook, the impact of media coverage is less clear-cut: Though it appears to indirectly increase reactions via the digital followership, its direct impact is negative, leading to fewer reactions. We assume that people "like" political actors who are often covered by traditional media, but react less frequently when they are often visible in traditional media, maybe because the social media message only repeats the message already heard via traditional media, or because people think the respective politician does not need help spreading his or her messages on social media. By contrast, political actors on Twitter receive a lot of digital reactions when they dominate traditional media

coverage. Again, this can be explained by the news-like character and the motivation of users to receive news and live events (Stieglitz & Dang-Xuan, 2012).

In addition to media coverage, one other structural advantage indicates a normalization on Facebook: Politicians with a larger vote share attract more fans on Facebook. They do well to build a large digital followership that actively reacts to their posts and can be mobilized during the next election or vote.

Yet, contradicting our second hypothesis, we also found indications of equalization on both platforms: Politicians who spend less money on ads in traditional media have larger digital followerships on Facebook. We assume that they do not need to pay for as many ads in print media as those with fewer digital fans because they have already built large followerships. That is, they manage to reach thousands of people without paying for traditional ads. Hence, future studies should dig deeper and analyze whether these politicians use Facebook ads to raise their visibility: They may simply have shifted from paying for traditional to digital ads.

Although we did not find any direct effects of social media characteristics on reactions (H3 rejected), on both platforms neither early adaption nor intensive activity led to more reactions. However, there is an indirect effect (H4 confirmed). On Twitter, it is not the greater social media experience and savviness of early adaptors that assures more reactions, but the greater professional follower networks they were able to build in the early years of Twitter (whereas late comers have more problems to get noticed) which then leads to more reactions per tweet. By contrast, on Facebook activity leads to more fans and thus to more reactions. At this point it becomes clear that the different technical affordances of both platforms (Bucher & Helmond, 2017) may have had an impact on our results. As the two platforms differ strongly in their algorithms. It may that continuous activity is rewarded by the Facebook algorithm, assuring the visibility of posts and thus making reactions more likely. Thus, although an active digital followership can spread a message to raise visibility, the effective reach of a message is still moderated by the algorithm. In particular, how far each message spreads in the networks

of their friends and followers depends on the algorithm (or on the money politicians spend on "sponsored posts"). Thus, platforms with a strong algorithmic influence – such as Facebook – are powerful actors.

The results of the Swiss political actors' behavior on these platforms illustrate how the platform moderates their success: The gap between politicians receiving the most and the least reactions, on average, by their followership is much larger on Facebook (Oskar Freysinger with 672 and Peter Keller with .41) than on Twitter (Daniel Vischer with 14.67 and Heinz Brand with < .01). Since there are more Swiss Facebook than Twitter users, not only do the "rich get richer" in terms of "likes" on Facebook, they reach an even larger secondary audience on Facebook through "likes" than they probably would have on Twitter. Therefore, investigating success on social media needs not only to focus further on the active digital followership, but also on the moderating role of platforms' algorithms.

This study faces several limitations. The proposed model suggests that offline measures (e.g., vote shares) predict success online (e.g., followership) by measuring correlations. That leaves the question of causality unanswered. Future studies should address the interplay between offline and online success: Does social media communication lead to success offline, which in turn leads to success online again? Though the investigation was a single country study on Switzerland, our results are supported by findings from other countries: For example, van Aelst, van Erkel, D'heer and Harder (2016) found for politicians in Belgium a similar relationship between the size of the Twitter and the media coverage they receive. Contrary to our results, however, the amount of followers also explains the digital reactions, probably due to their focus on the election phase. In Norway, the leaders of the three largest parties received by far the most reactions on Facebook (Larsson, 2016), indicating a normalization tendency that we also found for Facebook in Switzerland. Yet, Samuel-Azran, Yarchi and Wolfsfeld (2015) who compared challengers with incumbent political leaders from Israel found equally large followerships on Facebook indicating equalization opportunities. In sum, the country-

specific aspects of the political system and the adoption and use of social media must be a central element of comparing political actors' social media success in different countries: While the possible beneficial outcomes of social media might be similar, the platforms' roles in a country might not be.

Furthermore, we argued that the power to determine success on social media has shifted towards citizens. Political actors' impact on social media depends heavily on their followership, which reacts to (and spreads) their messages. However, the feedback might not always be favorable: Digital citizens – and especially media actors – watch with Argus eyes what political actors post, which could spark a firestorm. That is one reason why political actors cautiously post messages and very seldom deliberate publicly online (Kalsnes, 2016; Stromer-Galley, 2000). Although Swiss political actors are usually very careful online, and none of the most successful politicians in this study was involved in a firestorm that could have biased these results, we did not distinguish between positive and negative digital reactions.

Finally, "likes" might be manipulated by users or bots. Since "manipulations" are an established part of offline political communication (e.g., orchestrated audiences or lobbyists), it is not surprising that they happen online as well. However, they need to be kept in mind and should be further investigated (Kovic, Rauchfleisch, & Sele, 2016). Additionally, political actors might outsource their followership management and may not (regularly) monitor their online presence themselves. Yet it is ultimately the politicians' characteristics that attract a large digital followership and reactions.

We argued that building an active digital followership might become a crucial part of a successful political career. In Switzerland, almost half of the successful outlier cases are younger political actors from both sides of the political spectrum and larger as well as smaller parties. How large and active their digital followership becomes might serve as a predictor of their future political success.

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Supplementary materials

Appendix A. Swiss media outlets for media coverage

We conducted a search for each political actor (first name and surname) and his/her position (e.g., member of parliament; translated in the three national languages of Switzerland (German, French and Italian) in the following media outlets.

Table A. The 118 media outlets of Switzerland representing the diverse Swiss media landscape including print, online, television and radio outlets as well as national news agencies.

Media	Print	Online	TV	Radio	News Agency
10 vor 10 (SRF)			X		
20 minuten	X				
20 minutes	X				
20 minuti	X				
20minuten.ch		X			
20minutes.ch		X			
24-Heures	X				
24heures.ch		X			
Aargauer Zeitung	X				
AargauerZeitung.ch		X			
Agence Télégraphique Suisse					X
arcinfo.ch / L`Impartial Online		X			
Arena (SRF)			X		
Basellandschaftliche Zeitung	X				
Basler Zeitung	X				
Basler Zeitung Sonntag	X				
baslerzeitung.ch		X			
Beobachter	X				
Berner Zeitung	X				
bernerzeitung.ch		X			
Bieler Tagblatt	X				
Blick	X				
Blick am Abend	X				
Blick.ch		X			
BlickamAbend.ch		X			

bluewin.ch (deutsch)		X	
bluewin.ch (französisch)		X	
bluewin.ch (italienisch)		X	
Bote der Urschweiz	X		
Bote vom Untersee und Rhein	X		
Bündner Tagblatt	X		
Corriere del Ticino	X		
Corriere del Ticino - cdt.ch		X	
Der Bund	X		
Der Landbote	X		
Die Südostschweiz	X		
Die Südostschweiz am Sonntag	X		
Echo der Zeit (SRF)			X
gmx.ch		X	
HandelsZeitung	X		
handelszeitung.ch		X	
(il) caffe.ch (Ringier)		X	
infosperber.ch		X	
landbote.ch		X	
Le 12h30 (RTS)			X
Le Journal (RTS)			X
Le Matin (print)	X		
Le Matin Dimanche	X		
Le Matin.ch		X	
Le Nouvelliste	X		
Le Temps	X		
LeNouvelliste.ch		X	
LeTemps.ch		X	
L'Express - Feuille davis de Neuchatel	X		
L'Hebdo	X		
luzernerzeitung.ch / Neue Luzerner Zeitung Online		X	
Migros-Magazin	X		
msn.ch (German)		X	
msn.ch (French)		X	
Neue Fricktaler Zeitung	X		
Neue Luzerner Zeitung	X		

Neue Zürcher Zeitung	X			
NZZ am Sonntag	X			
NZZ Online		X		
Ostschweiz am Sonntag	X			
Radio 24 - News			X	
Radio Argovia - Nachrichten			X	
Radio Central - Nachrichten			X	
Radio Energy - News			X	
Radio Lausanne FM - Journal			X	
Radio Zürisee - News			X	
Radiogiornale 12.30 (RSI)			X	
Rendez-Vous (SRF)			X	
Reuters German News Service				X
Rheintalische Volkszeitung	X			
RSI (uno / due / tre)		X		
rsi.ch		X		
rts.ch		X		
Rundschau (SRF)		X		
Sarganserländer	X			
Schweiz am Sonntag	X			
Schweizerische Depeschenagentur				X
Solothurner Zeitung / NMZ	X			
Schweiz am Sonntag (AZ)	X			
SonntagsBlick	X			
SonntagsZeitung	X			
sonntagszeitung.ch		X		
srf.ch		X		
St. Galler Tagblatt	X			
St. Galler Tagblatt Online		X		
Surseer Woche	X			
Tages Woche	X			
Tages-Anzeiger	X			
TagesAnzeiger.ch		X		
Tagesschau (SRF)		X		
tageswoche.ch		X		
Tele 1 - Nachrichten		X		
Tele Bärn - News		X		

Tele Basel - 7vor7			X		
Tele M1 - Aktuell			X		
Tele Ostschweiz			X		
Tele Top			X		
Tele Züri - Züri News			X		
Telegiornale Sera (RSI)			X		
Thurgauer Nachrichten		X			
Thurgauer Zeitung	X				
ticinonews.ch		X			
tio.ch		X			
Tribune de Genève	X				
Tribune de Geneve - tdg.ch		X			
Walliser Bote	X				
Watson.ch		X			
Weltwoche	X				
WochenZeitung	X				
Zentralschweiz am Sonntag	X				
Zürcher Oberländer	X				
Zürcher Unterländer	X				
Zürichsee Zeitung	X				
Total	**54**	**37**	**16**	**8**	**3**

Appendix B. Personal, structural and social media characteristics predicting the amount of reactions on Facebook and Twitter.

We conducted negative binomial regressions for the amount of digital followership and multiple linear regressions for the average amount of reactions separately for Facebook (see Table B) and Twitter (see Table C). The path models (Figure 3 and 4 in the paper) are based on these calculations.

Table B. The impact of personal, structural, and social media characteristics of Swiss political actors on the amount of fans and reactions on Facebook during the non-election phase of the 49th legislation

	Model 1: Facebook Digital followership Exp(B) (SE)	***Model 2: Facebook Digital reactions Beta (SEM)***
Age	.990 (.019)	.060 (.614)
Gender	.444* (.326)	.042 (12.2)
Education	.831 (.318)	.110^{+} (11.16)
Ideology	1.005 (.024)	.096 (.894)
Parliamentary activity	1.016* (.006)	.017 (.237)
Urbanization	1.013^{+} (.007)	-.040 (.234)
Wing party	1.287 (.382))	.007 (14.38)
Incumbency	1.007 (.030)	-.034 (1.02)
Vote percentage	1.022^{+} (.012)	.017 (.494)
Key position	1.278 (.155)	-.001 (5.07)
Media coverage	1.001*** (.000)	-.135^{+} (.013)
Financial resources	0.977* (.011)	-.048 (.358)
Adoption	1.000 (.000)	-.039 (.009)
Activity	3.066* (.506)	-.078 (16.45)
Digital Followership	-	.984*** (.001)
Adjusted R^2	-	.858
Interception	62.667* (.506)	-
Goodness of fit (Chi-Square)	1.234	-
Omnibus test (Chi-Square)	74.98***	-
95% Wald CI	.683 and 1.271	-
N	*63*	*63*

Note. *** p<.001, ** p<.01, * p<.05, $^{+}$p<.1 Negative binomial regression for DV Followership: Odds ratios (Exp(B)) and standard error (SE) are displayed. Linear regression analyses for DV Reactions (adjusted R^2 = .858): Standardized beta coefficients and standard errors of measurement (SEM) are displayed.

Table C. The impact of personal, structural, and social media characteristics of Swiss political actors on the amount of followers and reactions on Twitter during the non-election phase of the 49th legislation

	Model 3: Twitter Digital followership Exp(B) (SE)	***Model 4: Twitter Digital reactions Beta (SEM)***
Age	.962***(.010)	-.064 (.033)
Gender	.852 (.167)	.012 (.563)
Education	.989 (.212)	.064 (.611)
Ideology	.953**(.016)	.051 (.001)
Parliamentary activity	1.007+(.004)	.026 (.11)
Urbanization	1.011**(.004)	-.084 (.013)
Wing party	.756 (.209)	-.032 (.668)
Incumbency	1.004 (.019)	.169 (.062)
Vote percentage	1.006 (.006)	-.202+ (.018)
Key position	1.008 (.077)	-.209* (.237)
Media coverage	1.001***(.000)	.470** (.001)
Financial resources	1.001 (.007)	-.021 (.19)
Adoption	1.001***(.000)	-.278* (.001)
Activity	1.151 (.155)	-.101 (.526)
Digital Followership	-	-.087 (.000)
Adjusted R^2	-	.150
Interception	464.75*** (.65)	-
Goodness of fit (Chi-Square)	1.180	-
Omnibus test (Chi-Square)	114.08***	-
95% Wald CI	.526 and .864	-
N	*108*	*108*

Note. *** p<.001, ** p<.01, * p<.05, + p<.1 Negative binomial regression for DV Followership: Odds ratios (Exp(B)) and standard error (SE) are displayed. Linear regression analyses for DV Reactions (adjusted R^2 = .858): Standardized beta coefficients and standard errors of measurement (SEM) are displayed.

Appendix C. Personal, structural and social media characteristics predicting the amount of likes, comments and shares on Facebook and the amount of favorites and retweets on Twitter

Since our aggregated variable reactions included likes, comments and shares on Facebook and favorites and retweets on Twitter, we calculated the same models for each indicator to check whether there are were any differences between them. Yet, there were almost none.

Citizens on Facebook like public messages of higher educated politicians, but do not comment or share them (see Table D compared to Table B). Furthermore, the aggregate reactions did not reveal that Facebook users like public posts of politicians who are more ideologically right-leaning (b = .097, SE = .688, p = .061). Additionally, whereas the aggregate reactions already showed that media coverage leads to fewer reactions, the reactions split up uncover that this is true for likes and comments but not for shares (b = -.087, SE = .002, p = .403). Finally, there is a negative correlation between comments and activity (b = -.115, SE = 1.97, p = .089). Users comment more if a politician posts more rarely, which is probably due to the resources of users.

Table D. The impact of personal, structural, and social media characteristics of Swiss political actors on the amount of the digital reactions likes, comments and shares on Facebook during the non-election phase of the 49th legislation

	Facebook: "Likes" Beta (SEM)	***Facebook: "Comments" Beta (SEM)***	***Facebook: "Shares" Beta (SEM)***
Age	.054 (.473)	.043 (.074)	.119 (.088)
Gender	.050 (9.39)	.040 (1.47)	-.022 (1.74)
Education	.110^{+} (8.59)	.096 (1.34)	.120 (1.60)
Ideology	.097^{+} (.688)	.096 (.107)	.083 (.128)
Parl. activity	.004 (.182)	.016 (.028)	.120 (.034)
Urbanization	-.035 (.181)	-.021 (.028)	-.106 (.034)
Wing party	.005 (11.07)	.072 (1.73)	-.054 (2.06)
Incumbency	-.032 (.781)	-.032 (.122)	-.046 (.154)
Vote percentage	.032 (.381)	-.068 (.059)	-.008 (.071)
Key position	.012 (3.90)	-.010 (.608)	-.094 (.724)
Media coverage	-.140^{+} (.010)	-.129^{+} (.002)	-.087 (.002)
Financial resources	-.048 (.276)	-.026 (.043)	-.067 (.051)
Adoption	-.054 (.007)	.011 (.001)	.020 (.001)
Activity	-.061 (12.66)	-.115^{+} (1.97)	-.155 (2.35)
Followership	.987*** (.001)	.986*** (.000)	.894*** (.000)
Adjusted R^2	.864	.856	.716
N	*63*	*63*	*63*

Note. *** p < .001, ** p < .01, * p < .05, $^{+}$ p < .1, N = 108. Linear regression analyses. Standardized beta coefficients and standard errors of measurement (SEM) are displayed.

The aggregated results of reactions are the same for favorites and retweets separately with one exception (compare Table E with Table C): Whereas tweets are more often retweeted if the politician is member of a party with low vote percentage, they do not "favorite" their tweets more often (b = -.125 , SE = .010, p = .248). Twitter users thus help spread their tweets rather with retweets than favorites to make them more visible.

Table E. The impact of personal, structural, and social media characteristics of Swiss political actors on the amount of the digital reactions favorites and retweets on Twitter during the non-election phase of the 49th legislation

	Twitter: "Favorites" Beta (SEM)	***Twitter: "Retweets" Beta (SEM)***
Age	-.105 (.018)	-.011 (.018)
Gender	.082 (.312)	-.062 (.302)
Education	.017 (.338)	.105 (.327)
Ideology	.042 (.028)	-.042 (.027)
Parliamentary activity	-.006 (.006)	.056 (.006)
Urbanization	-.041 (.007)	-.116 (.007)
Wing party	-.119 (.370)	.065 (.358)
Incumbency	.138 (.034)	.177 (.033)
Vote percentage	-.125 (.010)	-.252*(.010)
Key position	-.208*(.131)	-.179^{+} (.127)
Media coverage	.478***(.000)	.392**(.000)
Financial resources	.017 (.011)	-.058 (.010)
Adoption	-.291** (.000)	-.222* (.000)
Activity	-.083 (.291)	-.106 (.282)
Followership	-.090 (.000)	-.071 (.000)
Adjusted R^2	*.141*	*.125*
N	*108*	*108*

Note. *** p < .001, ** p < .01, * p < .05, $^{+}$ p < .1, N = 108. Linear regression analyses. Standardized beta coefficients and standard errors of measurement (SEM) are displayed.

Appendix D. Personal and structural characteristics predicting the amount of reactions media coverage.

We conducted negative binomial regression analysis to find out which personal and structural characteristics explain the amount of media coverage of the members of Swiss parliament during the non-election phase of the 49th legislation. We found that younger (Exp(B) = .978, SE = .342, p < .001), female (Exp(B) = .769, SE = .005, p < 0.01) and long-term incumbents (Exp(B) = 1.072, SE = .001, p < .001) in key positions (Exp(B) = 1.179, SE = .039, p < .001) and with many financial resources (Exp(B) = 1.010, SE = .003, p < .001) have higher odds to receive media coverage about themselves (see Table F).

Table F. The impact of personal and structural characteristics of Swiss political actors on the amount of media coverage during the non-election phase of the 49th legislation

	Media coverage
	Exp(B) (SE)
Age	0.978*** (.342)
Gender	0.769* (.005)
Education	1.137 (.091)
Ideology	0.999 (.008)
Parliamentary activity	1.003 (.002)
Urbanization	1.003 (.002)
Wing party	1.044 (.112)
Incumbency	1.072*** (.001)
Vote percentage	0.996 (.003)
Key position	1.179*** (.039)
Financial resources	1.010** (.003)
Interception	6.494*** (.34)
Goodness of fit (Chi-Square)	0.986
Omnibus test (Chi-Square)	100.21***
95% Wald CI	.362 and .506
N	*245*

Note. *** p<.001, ** p<.01, * p<.05, Negative binomial regression for DV Media coverage: Odds ratios (Exp(B)) and standard error (SE) are displayed.

Study 4: Social Bots in Election Campaigns

Social bots in national election campaigns: Theoretical, empirical and methodological implications

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Abstract

Social bots mimic and potentially manipulate humans and their behaviours in social networks. The public sphere might be especially vulnerable to their impacts, which is why we first discuss their potential influence on the public sphere from a theoretical perspective. From an empirical perspective, we analysed Twitter followers of seven German parties before (N = 638,674) and during the 2017 electoral campaigns (N = 838,026) regarding bot prevalence and activities. The results revealed that the share of social bots increased from 7.1% before to 9.9% during the election campaigns. The percentage of active social bots remained roughly the same. An analysis of the content distributed by both the most popular and the most active bots showed that they disseminate few political hashtags, and that almost none referred to German politics. We discuss the results against the background of normative traditions of public sphere theories and address the methodological challenges bots pose in political communication.

KEYWORDS: social bots, elections, Twitter, public sphere, Germany

1. Introduction

Social bots are computer programs that mimic and potentially manipulate humans and their behaviours in social networks (Ferrara, Varol, Davis, Menczer, & Flammini, 2016; Wagner, Mitter, Körner, & Strohmaier, 2012). Bots post in online forums and dating platforms, and 'like', comment, and share social media contributions. They are cheap tools to make content, topics, or actors appear more popular than they really are. They start and catalyse online phenomena to stir outrage and artificial hypes, while neither people nor trending algorithms can discern them with full accuracy as non-human agents. Social bots differ from more general bot software that deliver simple services around information retrieval, selection or the creation of personalised preferences without directly interacting with Internet users (Woolley, 2016).

Social bots are no longer a marginal phenomenon on social media platforms. On Twitter, 9% to 15% of users are estimated to be bots (Varol, Ferrara, Davis, Menczer, & Flammini, 2017). There has been an exponential growth in the number of Twitter bots on the largest open-source online code repository, GitHub – which enables people with few programming skills to deploy social bots for their (political) purposes (Kollanyi, 2016). Their everyday occurrence makes analysis and reflection imperative from a social science perspective, and calls for a convergence of social and computational science approaches. How do social bots influence and change social and political discourses that are invisible and indiscernible to Internet users? Do social bots endanger and challenge the interactive and participatory potential of digital communication in mass democracies? How should studies assess empirical evidence of social bots' prevalence, activities and impacts, and what does this mean for studies on political communication in social media generally?

From the perspective of political communication, we address social bots from three angles: theoretical, empirical and methodological. We begin with a review of the theory and current literature regarding social bots, to discuss how they work and why they may create problems for democratic processes and public communication, drawing on public sphere

theories. We then present an empirical study of social bots among Twitter followers of Germany's political parties before and during the country's 2017 national election campaigns. From a methodological perspective, our paper raises the question how political communication scholars who work with social media data should deal with social bots.

2. Theory: Social bots, agency and normative models of the public sphere

From a theoretical perspective, social bots challenge many concepts that social scientists take for granted, for instance, the question what constitutes an *actor*. While some authors understand bots as "automated social actors" (Abokhodair, Yoo & McDonald, 2015, p. 2), the question of technology and non-human agency is theoretically more complex. Technologies designed and programmed by humans embody social values and business models; they are encoded with human intentions and have limited agency of their own (Klinger & Svensson, 2018). Their behaviour is human-like and human-guided, which makes them human-dependent rather than autonomous actors. For instance, people overcome their physical limitations by using bots to retweet messages under multiple personas. Social bots impact communal relationship types (*Vergemeinschaftung*), i.e. social relationships based on a sense of belonging together, as well as associative relationships (*Vergesellschaftung*), i.e. social relationships based on rational agreements (Weber, 1922, §9). How do we account for social structures and relations that include social machines? And, since we know that social bots generate a large percentage of Internet traffic (Zeifman, 2015) and interact with human users, what does this mean for the formation of social relations and society, especially the public sphere?

On the one hand, there are many useful tasks for social bots in political communication. Similar to bots helping people to choose new outfits, bots could help citizens identify their political preferences and match them with parties and candidates (e.g. in voting advice applications, such as Wahl-O-mat in Germany or Smartvote in Switzerland). On the other hand, problems start when bots operate in disguise, interacting with citizens, voters, and stakeholders

without people knowing. Social bots can orchestrate campaigns to hype organisations, alter perceptions of political reality by spreading propaganda (Abokhodair et al., 2015; Boshmaf, Muslukhov, Beznosov & Ripeanu, 2011), disrupt government and organisational communication (Woolley & Howard, 2016), feign grassroots movements (Rathnayake & Buente, 2017), spread misinformation (Shao, Ciampaglia, Varol, Yang, Flammini, & Menczer, 2018), and alter public opinion by simulating the popularity of or protest against topics or actors (Ferrara et al., 2016). This implies that an increasing amount of online communication is non-authentic, but at the same time intended to yield real consequences.

Social bots can have different functions based on the behaviours they are programmed for. They can be merely *passive*, connecting with a number of accounts in order to boost the number of followers and their interconnectedness without contributing content. In this way, they make actors appear more popular and socially acceptable than they really are, encouraging others to follow or 'like' them (the so-called bandwagon effect, Sundar, Oeldorf-Hirsch, & Xu, 2008). Alternatively, they could be *active*, liking, sharing, retweeting, commenting and broadcasting information, interacting in debates and fuelling discussions.

Online public spheres, such as social media platforms and online forums, have become commonplace for deliberation, political talk, discourse, and the articulation and aggregation of political interests. Whether or not participants realise it, their interactions are likely to be infiltrated by social bots and their agendas; as Mitter, Wagner, & Strohmaier (2013, p. 1) put it: "Without a deep understanding of the impact of such attacks, the potential of online social networks as an instrument for facilitating discourse or democratic processes is in jeopardy." However, whether social bots pose a threat to the public sphere or democracy largely depends on the normative perspective. Table 1 describes Ferree, Gamson, Gerhards, & Rucht's (2002) four models of the public sphere in modern democracies: representative-liberal, participatory-liberal, discursive and constructionist.

Table 1: Normative traditions of public spheres

	Inclusion	**Processes**	**Key bot problems**
Representative-liberal	Elites, Experts	Recurring exchange of political elites in elections	Quantitative misrepresentation of popularity
Participatory-liberal	Popular inclusion	Plural decision-making	Diffusion of fake political interests (astroturfing)
Discursive	Popular inclusion	Deliberation	Non-authentic, manufactured participants; Lack of mutual respect and rationality
Constructionist	Popular inclusion	Empowerment of marginalized actors, Expansion of political community	Non-authentic, manufactured participants

Note. Overview of the models of public sphere is based on Ferree et al. (2002, p. 316).

In a representative-liberal tradition, the public sphere is an elite-dominated, free and transparent forum that enables citizens to repeatedly choose (and replace) their representatives. In this instance, bots potentially disturb the key principles of proportionality and transparency. By discreetly making some ideas and actors appear more popular than they really are, coverage of political actors becomes disproportional to their de facto citizen following. Although citizens may be unaware of the situation, it becomes impossible for them to take popularity cues (Keller & Kleinen-von Königslöw, in press; Porten-Cheé, Haßler, Jost, Eilders & Maurer, 2017) from political actors in social networks as a proxy of public opinion and their popularity among fellow citizens, and there may even be a conflict of popularity cues online (likes, retweets) and offline (polls, media coverage). Thus, in a representative-liberal perspective, bots are a problem when they distort political competition, intervene in campaigns, and influence elections' outcomes. If bots boost political parties or candidates' number of Twitter followers, Facebook friends or group members, they threaten the functioning of key democratic processes.

In a participatory-liberal tradition, the public sphere is a space for public discourse that seeks to achieve maximum popular inclusion – not only during election campaigns, but all the

time. Voices should not be linked to proportionality, but to plurality: all interests and actors in a community should be included and heard. However, with increasing bot presence, the desired inclusion of grassroots movements may turn more to *astroturfing*, "grassroots support that is artificial because it is manufactured and does not arise spontaneously" (Klotz, 2007, p. 5). The principle of plurality is based on the premise of authentic interests and stakes in a society. Bots may insert non-authentic interests (interests no human or group in a society have ever voiced) and manipulated interests (fake interests that are manufactured to distort plurality). It becomes impossible for a society to monitor itself when machines disguised as societal members enter and manipulate the marketplace of ideas (Alexander, 2015). This means that bots are not only a problem because they lead to quantitative misrepresentations and make parties or candidates seem more popular than they are, but because they could potentially give voice to non-existent ideas. In the functioning of public spheres, this is particularly relevant when bots send and multiply (retweet) political messages.

This aspect becomes even more toxic in the discursive tradition: "But when important normative questions are at stake, it is crucial that the discussion not be limited to actors at the centre of the political system. On such issues, a well-functioning public sphere should simultaneously include actors from the periphery as well [...]" (Ferree et al., 2002, p. 300). Habermas's distinction between autonomous (*autochtone*) and power-regulated (*vermachtete*) actors from the periphery becomes obsolete when automated, manipulative and interest-driven bots enter a discourse. Bots have no intention to understand or consider others' opinions, and their participation in political discourse only emphasises their creators' lack of respect for deliberative processes. The idea that decisions are made collectively, and conflicts are resolved based on an argument's quality rather than on the number of supporters for an argument, is irreconcilable with social bots. With bots, discourse becomes impossible; debate turns into a travesty.

Finally, a constructionist perspective on public spheres focuses not only on plurality and inclusion, but on difference and mutual recognition: “Recognition politics, sometimes called identity politics, creates a good public sphere by decentring dominant speakers and their assumptions of what is ‘natural’” (Ferree et al., 2002, p. 308). In this tradition, everything is political, whether it takes place in private or in public, wherever power structures appear. The normative objective is to give voice to the marginalised, contesting and breaking “the boundaries between the public and private” (p. 311). This notion of public conversation and democratic processes is seen as particularly vulnerable to the participation of bots, because it seeks to empower previously silent voices and to include fringe groups and their political claims, and prefers narrative styles over rational, unemotional debate. Bots can boost popularity cues and take on the identity of an assumed marginalised group (Howard, Wooley & Calo 2018). Constructionist visions of public discourse depend on authentic individuals contributing genuine perspectives from their life-worlds (*Lebenswelt*), which are easily infiltrated and undermined by bots.

Bots are not inherently evil forces, and they are not all problematic for the same reasons. Any assessment of their impacts must acknowledge their empirical behaviour patterns and a theoretical reflection on normative assumptions about political communication and the public sphere.

3. Literature review: What we know about social bots in political communication

While these questions are being discussed in blogs and newspapers, communication research is only starting to focus on social bots. Initial social science research projects have made it clear that social bots are by no means a merely technical phenomenon, but change how Internet users interact and form social relations among each other, and with institutions, organisations and society. Social scientists have only recently begun to address their potential

to intervene in election campaigns and to distort public communication and deliberation (Hegelich & Janetzko, 2016; Woolley, 2016).

Social bots exist to participate in human interaction and discourse, and are finding a fertile habitat in social media networks. Approximately one-quarter of Donald Trump's Twitter followers during the 2016 U.S. presidential campaign were bots (Woolley & Howard, 2016b). By focusing on hashtags, Kollanyi, Howard and Woolley (2016) found that bots made up a large part of Twitter traffic during the campaign and privileged Trump messages over Clinton ones. Bessi and Ferrara (2016) found that social bots were present and did influence the U.S. presidential campaign, with about 20% bots involved, generating about 20% of the political debate on Twitter. They also showed how easy it is to employ bots, even for inexperienced and non-tech-savvy users, since they are offered by diverse companies, sometimes even on a monthly subscription basis (p. 2). Bots intervened in the Brexit debate (Howard & Kollanyi, 2016), and the online petition for a second referendum on Brexit in June 2016 was "signed" by 77,000 bots (BBC, 2016). Bastos and Mercea (2017) discovered a network of 13,493 Twitterbots supporting the Leave EU campaign. Social bots drove the #MacronLeaks disinformation campaign: "the users who engaged with MacronLeaks are mostly foreigners with a pre-existing interest in alt-right topics and alternative news media, rather than French users with diverse political views. Concluding, anomalous account usage patterns suggest the possible existence of a black-market for reusable political disinformation bots" (Ferrara, 2017, p. 1). A study of Germany's 2017 election campaigns at the Oxford Internet Institute found that "highly automated" tweeting increased from 5.7% to 7.4% between February and September 2017. It also compared data from other projects but with the same research design, finding between 5.2% and 16.5% automated tweeting in various campaigns (Neudert, Kollanyi & Howard, 2017). Previous studies outside the U.S. and European contexts found that right-wing parties and radical opposition parties used social bots more often than other parties (Schäfer et al., 2017). Hegelich and Janetzko (2016) identified and analysed a botnet connected to the

Ukraine conflict and showed that social bots have political agendas and act relatively autonomously on the basis of complex algorithms.

This is all the more relevant because experimental studies show that users perceive social bots as equally credible, competent, attractive and interactive as human agents (Edwards, Edwards, Spence & Shelton, 2014; Everett, Nurse & Erola, 2016). In this perspective, social bots can be understood as new actors in digital political communication and a key element of what has been termed *computational propaganda*: "We define computational propaganda as the assemblage of social media platforms, autonomous agents, and big data tasked with the manipulation of public opinion" (Woolley & Howard, 2016a).

From previous empirical studies on social bots, we can conclude that bots are omnipresent on platforms, particularly on Twitter, and that they are being used to influence political and other debates. This case study of how social bots interfere with the digital public sphere focuses on Germany's 2017 national elections seeks to answer five research questions detailed below.

Previous studies found that between 5% and 25% of Twitter accounts are bots (Bessi & Ferrara, 2016; Neudert et al., 2017; Varol et al., 2017) and that the number of bots is higher during a campaign phase than in a non-electoral period, especially since bots are sometimes removed from a platform after a campaign (Bastos & Mercea, 2017). Based on this, we ask:

RQ1: How many social bots follow Twitter accounts of German parties?

RQ2: Are there more social bots during the election campaign than in the non-electoral period?

While passive social bots among a party's followers may increase their popularity, active bots' functionalities are more sophisticated. They are able to 'like' or retweet parties' messages, making them appear more popular and spreading them through the network. During election campaigns, the incentives to use bots to increase a party's visibility and to impact on

political debate are higher, both for a party's supporters or other actors with an interest in influencing an election (Ferrara, 2017).

RQ3: Are there more active social bots during the election campaign than in the non-electoral period?

All but one political party in Germany have pledged to not strategically use social bots during their campaigns, after social bots became a topic of public debate. One party, the right-wing populist AfD (Alternative for Germany) declared in October 2016 that "of course" they would implement social bots in the election campaign – "after all, for young parties such as ours social media tools are important instruments to proliferate our positions among voters"[15] (Stürzenhofecker, 2016, p. 1). A few days later, the party retracted this statement with a declaration not to use bots in the campaign. However, since similar right-wing populist parties in Japan and France used bots (Ferrara, 2017; Schäfer et al., 2017), and Neudert et al. (2017) found that most bots were supporting AfD, we ask:

RQ4: Does the right-wing populist party AfD have the largest share of social bots among its followers?

Most studies measuring bots during election campaigns have remained silent on the content disseminated by bots (Zhang & Lu, 2016). Bots' presence alone is regarded as problematic. Nonetheless, it is possible that the same bots that boost parties and candidates' popularity levels spread no political messages, only commercial advertisements (Maireder, Weeks, Gil de Zúñiga, & Schlögl, 2016) or even nonsensical content (Bucher, 2017). We

[15] Original quote: "Gerade für junge Parteien wie unsere sind Social-Media-Tools wichtige Instrumente, um unsere Positionen unter den Wählern zu verbreiten."

investigate whether bots post political content, and if they do it more often during an election period than in a non-electoral period.

RQ5: Do social bots disseminate political content, and if so, more during the election campaign than in the non-electoral period?

A final aspect in this literature review addresses the methodological approaches of bot-detection in studies. Bots avoid detection, and their creators invest effort into their resembling human users. Thus, it is not easy to identify bots and to distinguish these Twitter accounts from human accounts. Zhang and Lu's (2016) computational approach used a user's network information to determine whether an account is a bot or a human on Weibo. Thus, they identified "millions of spammers" (Zhang & Lu, 2016, p. 14). The downside of their strategy is that they can only identify spambots depending on someone's network. Another approach, that of Hegelich and Janetzko (2016), is based on the URL that a tweet was sent from, which can be retrieved as part of a tweet's metadata. By manually identifying tweets sent from obvious bot creators, such as Twifarm, they searched for accounts that followed these bots in order to unveil bot-networks. This approach is only possible if one starts with hashtags and tweets, not with Twitter accounts, because account metadata contains no URL information. The downside is that this method only detects a small number of active bots. For instance, in Hegelich and Janetzko's case study, only 1,740 bots followed one another. Another approach is to identify and single out behavioural aspects that differ from human users, such as a high frequency of messages sent. Various studies on campaigns (Howard & Kollanyi, 2016; Neudert et al., 2017) came from a group of scholars who count any account that sends out more than 50 tweets per day as bot, assuming "high automation". Needless to say, it is possible for a person to send 50 tweets per day (Musgrave, 2017). Also, not all bot accounts are this active, since passive bots exist only to boost certain accounts' follower numbers. Thus, this approach can only capture a specific bot type that broadcasts very actively. There is also the strategy of detecting social bots

via near-duplicate tweets (copies or very similar versions of the same tweet sent by multiple bots), which bots use to inflate certain topics' frequency and importance (Schäfer, Evert & Heinrich, 2017). While this detection method is very useful, it remains unclear whether humans copied and pasted a tweet's content (Musgrave, 2017). Even if these copy-and-paste users were bots, they discover only one type of active copy-bots. Another share of studies uses multiple indicators to detect social bots: More elaborate ones use indicators such as "tweets to user", "mean tweet to retweet", "common words in the username" or "ratio of outbound to inbound @-mentions" (Bastos & Mercea, 2017, p. 6) to capture more than simple automated accounts. A similar approach, by Guo and Chen (2014), with a focus on geotagged tweets, proposes four steps to identify spambots, including machine learning techniques. A drawback is the focus on geotagged tweets, because many Twitter users opt out of this option. Although very elaborate, these techniques are hardly reproducible, since they require programming skills, which many social scientists (like us) lack.

With any bot-detection method, scholars face two key problems: 1) the cat-and-mouse game between bot creators and bot-detection developers and 2) the limited availability of data from commercial platforms. With complete datasets, it should be easy for platform owners to detect bots, but the incentive to do this and to delete these accounts is perhaps not worth pursuing: bot accounts do not buy anything and have no value for advertisers, but they keep the user numbers high. A sudden drop in platform users may unsettle shareholders. Thus, scholars must make the best of a tough situation. Here, we use the bot-detection tool Botometer, which was developed and maintained by computer scientists; it checks more than 1,000 variables of an account for features that are typical for bots (Davis, Varol, Ferrara, Flammini, & Menczer, 2016). This tool has been used in previous studies and is currently the most sophisticated, reliable and available instrument for bot-detection (see the next section on methods). Botometer is open for other scholars to detect social bots on Twitter so as to replicate our analysis.

4. Data and methods

We collected data on all Twitter accounts that followed the five German parties represented in parliament: conservative CDU and CSU, social-democrat SPD, socialist Die Linke, and environmentalist Die Gruenen. We also studied the liberal FDP, and right-wing populist AfD, which were considered likely to successfully (re-)enter Germany's Parliament in 2017 (and did). There were two data collection waves: the first, before campaigns started in January and February 2017, and the second during the week before Election Day on 24 September 2017.

For both waves, we first downloaded the Twitter account data of all followers of the seven German parties, including metadata such as their Twitter ID, screen name and numbers of followers, following and tweets (via BirdSong Analytics). Metadata also included information on account activity, i.e. whether or not a follower had been active in the past three months – that is, whether he or she tweeted, retweeted, liked or replied to a tweet. Downloading took place between 1 January and 13 February 2017 for the non-election period (1.180.362 accounts), and from 12 to 14 September 2017 for the campaign period (1.588.213 accounts).

In the second step, we used Botometer to identify bots and distinguish them from humans in an automated analysis via Botometer's API (Python 3.5). Since social bots constantly change their appearance, they are complicated to detect (Thieltges, Schmidt, & Hegelich, 2016). Botometer is a publicly available bot-detection instrument created and maintained by computer scientists at the University of Indiana. At the time of our study, it was the most sophisticated available instrument and has been used in several academic research projects, both by the creators and other scholars (Bessi & Ferrara, 2016; Ferrara, 2017). To ensure quality and comparability between the two waves, we kept in close contact with the computer scientists who maintain Botometer (and are greatly indebted to them for their kind support). However, we need to stress that bot detection is not an exact science, and Botometer also comes with serious limitations that we detail below.

Botometer "generates more than 1,000 features using available metadata and information extracted from interaction patterns and content" (Davis et al., 2016, p. 2). These are grouped into six main classes, (Varol et al., 2017): *user* features include the number of followers and tweets produced by users; *friends* encompasses follower-friend relations such as retweeting and mentioning behaviours between one another; *network* characteristics include in-strength and out-strength (weighted degree) distributions, density and clustering; *content and language* features include statistics about length and entropy of tweets and part-of-speech tagging; *sentiment* features encompass arousal, valence and dominance, happiness, polarisation, strength and emoticon scores (see Varol et al., 2017). From these, Botometer calculates a probability score between 0 (human) and 1 (bot) for each Twitter account. Overall, the tool has an accuracy of 0.86 and suggests that 9% to 15% of all Twitter users are bots (Varol et al., 2017). Because the tool is better equipped to identify humans than bots, our threshold for bots should be fairly high – not all accounts with a probability score over 0.5 should be counted as bots.

We conducted step three, data manipulation and cleansing, in R (R Core Team, 2017). Botometer could only evaluate about half of the Twitter accounts: 54% of followers in the non-electoral period (N = 638,674) and 53% of followers in the campaign period (N = 838,026), which constituted our sample (see Tables 2 and 3). Three errors prevented Botometer from calculating a final score for the remaining 541,688 follower accounts in the non-electoral and 750,187 accounts in the campaign phase: (1) an empty timeline (478,954 / 667,477 accounts), (2) the deletion of a Twitter account in the days between data collection and data analysis (1,269 / 2,135), and (3) privacy settings not authorising access to run an analysis (61,465 / 80,575). This points to a serious limitation of Botometer. While social media platforms monitor their users' behavior and remove suspicious accounts such as social bots (Lorenz 2018), external bot detection tools struggle with the platform's API access and its corresponding restrictions. Botometer cannot include a user's past activity in its analysis (when a user deletes all previous

activity, Botometer cannot calculate a score). Additionally, Botometer's access is limited by the user's privacy settings (bots may hide behind the veil of strict privacy settings). This leaves us with a specific kind of accounts: Twitter accounts with weak privacy settings, which were not deleted between data retrieval and the completion of analysis, with at least one tweet, retweet or like. However, it should be underlined that all current bot detection tools and methods are imperfect. Despite these limitations, Botometer is a not-for-profit, academic project that has been and is widely used (e.g. by the PEW Institute), publishes about how it works and is based on a multitude of possible indicators – which makes it a viable tool for the purpose of this study.

Table 2: Data of the non-electoral period (January to February 2017)

	Number of Followers (total)	**Final data**	**Error (Sum)**	*Error: No Timeline*	*Error: Page does not exist anymore*	*Error: Not authorized*
AfD	47.534	**31.885**	15.649	11.946	12	3.691
CDU	161.025	**88.207**	72.818	61.766	796	10.256
CSU	123.324	**60.795**	62.529	56.607	36	5.886
FDP	148.311	**75.470**	72.841	66.119	33	6.689
GRUENE	290.679	**160.152**	130.527	115.769	144	14.614
LINKE	155.599	**86.447**	69.152	61.324	57	7.771
SPD	253.890	**135.718**	118.172	105.423	191	12.558
Sum	1.180.362	**638.674**	541.688	478.954	1.269	61.465

Table 3: Data of the campaign period (September 2017)

	Number of Followers (total)	**Final data**	**Error (Sum)**	*Error: No Timeline*	*Error: Page does not exist anymore*	*Error: Not authorized*
AfD	74.923	**44.912**	30.011	24.541	228	5.242
CDU	221.114	**118.446**	102.668	89.469	306	12.893
CSU	166.631	**81.389**	85.242	76.875	221	8.146
FDP	244.624	**119.124**	125.500	114.340	337	10.823
GRUENE	356.481	**192.472**	164.009	146.104	358	17.547
LINKE	200.089	**110.578**	89.511	78.956	332	10.223
SPD	324.351	**171.105**	153.246	137.192	353	15.701
Sum	1.588.213	**838.026**	750.187	667.477	2135	80.575

To allow direct comparability between the different number of party followers and the metric scale scores, we calculated probability density functions (PDF), which we present as density plots. To answer RQ1 to RQ5, we set the threshold for detecting bots depending on the density plots and accuracy of Botometer.

For a content analysis of messages that bots disseminated (*RQ5*), we selected the 100 most active bots (number of tweets sent) and the 100 most popular bots (number of followers). Both vary significantly from the general bot population and represent the peak of the long-tail distribution of bots' activity and popularity: While the 100 most active bots sent on average 94,920/113,200 tweets (non-electoral/election period), the average of all bots was 171/120 tweets. The 100 most popular bots had an average of 45,950/81,520 followers, whereas the average of all bots was 106/90 followers. With this focus we investigate two very specific types of bots: the most popular bots, which could potentially function as opinion leaders reaching a large number of Twitter users and the most active, which could potentially flood the twittersphere with political content. After having downloaded their tweets for the extended non-electoral period between 2 January and 2 April 2017 ($N_{(active)}$ = 60,262, $N_{(popular)}$ = 42,425), and the extended campaign period between 24 June and 24 September 2017 ($N_{(active)}$ = 36,804, $N_{(popular)}$ = 14,130), we extracted all hashtags used in these posts to assess the overall topics of these tweets (Bruns & Burgess, 2015; Small, 2011). The 100 most used hashtags for both the most active and most popular bots in both periods were manually coded by the authors. We analysed 400 hashtags to assess whether they were political (e.g. #Brexit), and checked the tweets containing the hashtag for verification. The pre-test of 50 hashtags showed good reliability of the coders with a Krippendorff's alpha of 0.87.

5. Results

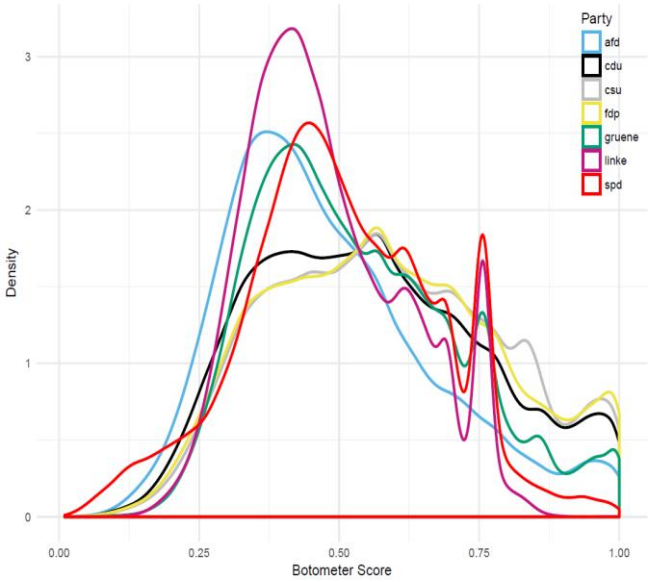
We compared the distribution of scores between 0 (human) and 1 (bot) across the seven German parties' followers. We found three different patterns in the non-electoral period; while

in the campaign period, all parties except the right-wing populist AfD show a similar pattern (see Figure 1 and Figure 2).

During the non-electoral period, CDU, CSU and FDP had a similar score distribution, as did SPD, Linke and Gruene; AfD showed a unique pattern. In the election phase, the general score distribution moved to the right, indicating a tendency of more bots among party followers. This is also true for AfD, whose follower distribution changed only marginally between the non-electoral and the campaign periods, although they gained more followers in the time between the two waves (+27,389 followers, +57%).

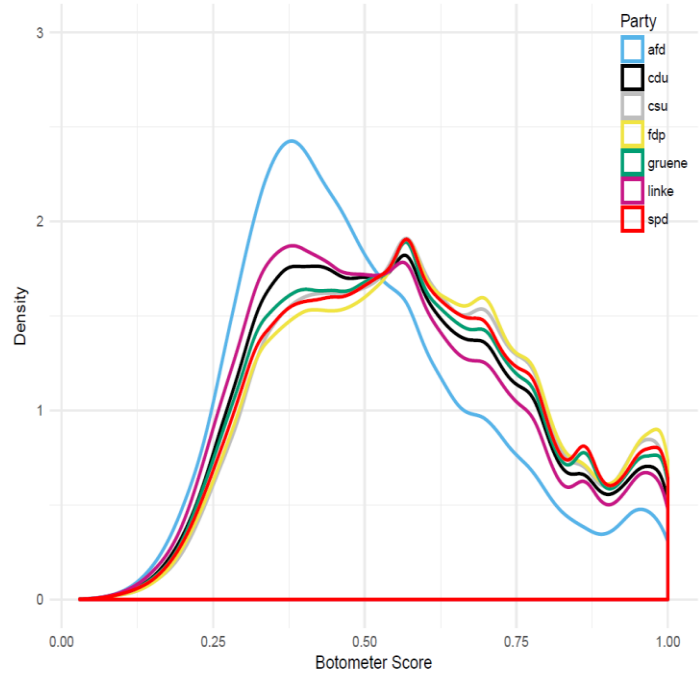
The strongest differences could be found regarding accounts that are most likely bots, followers with scores above 0.75. In the non-electoral period, SPD, Linke and Gruene showed a peak around 0.75, all other parties expressed a smaller peak between 0.85 and 1. During the campaign period, this peak between 0.85 and 1 was more pronounced for all parties. Notably, the probability density function pattern during the campaign period was very similar for all parties, except AfD. One reason for this, we discovered, is that most parties share followers. While AfD had about 45% single-party followers (followers that only follow AfD but no other party), the average share of single-party followers among all other parties was 17%. This means that approximately 83% of Twitter users in our data (whether human or bot) followed multiple parties. The share of single-party followers decreased slightly from February to September (-2%), so during the campaigns, more followers chose to also follow other parties. This also indicates that a surplus of followers does not necessarily mean that more people follow parties on Twitter, but that people who already follow a party also follow other parties. Among the 407,851 new followers the parties acquired between February and September, only 79,272 (19%) were single-party followers.

Figure 1: All followers' probability of being a bot in the non-election phase in a density plot (January and February 2017)



Note. Density plot of all seven German parties' followers and their Botometer scores in the non-election phase. N = 638.674, bandwidth = ndr0 (see Silverman, 1986). The area between two scores and the function = the probability of a follower receiving such a score.

Figure 2: All followers' probability of being a bot in the campaign period in a density plot (September 2017)



Note. Probability density function (PDF) of all seven parties' followers and their Botometer scores in the election phase. N = 838.026, bandwidth = ndr0 (see Silverman, 1986). The area between two scores and the function = the probability of a follower receiving such a score.

Considering Botometer's accuracy, the hard task to distinguish between humans and bots in general, and the distribution of the scores in our two waves, we set the threshold for bots at a score of 0.76. We found that the share of social bots fall mostly in the expected range of 5% to 25% (RQ1) (see Table 4).

Comparing the two waves, almost all parties had more followers, and most parties had more social bots among their followers in the campaign period than in the non-electoral period: AfD gained 0.4% more bots, Gruene 4.2%, Die Linke 8.3% and SPD 8.2%. Some parties had fewer bots during the campaign period: CDU -0.3% bots, CSU -0.8% and FDP -0.2%. Overall, the mean share of social bots among the seven German parties' followers rose from 7.1% to 9.9% (11,105 to 23,373 social bots), but not for all parties (RQ2).

Of these social bots, 212 (2%) on average per party were active during the non-electoral period and 314 (1.4%) during the campaign period. The numbers for each party are reported in Table 4. Social bots were not more active during the campaign period (RQ3).

Regarding *RQ4*, whether the populist party AfD had the highest number of social bots among its followers, our analysis revealed that during the campaign, AfD actually had the smallest share of bots among its followers (7.1%, 5,325 social bots). In the non-electoral period, AfD had a below-average share of social bots (6.7%, 3,181). However, AfD bots were particularly active: AfD had the second highest share of active social bots, with 2.8% during the non-electoral period and 1.7% during the campaign period. The data suggests that AfD had a larger share of human scores than all the other parties (scores lower than 0.4), a much higher share of active followers (33%/26% compared to an average of 15%/14.5% for the other parties), and the highest share of active humans.

Table 4. Bot presence and activity on Twitter in the non-electoral and campaign periods of Germany's 2017 national election

	Non-Electoral Period		**Campaign period**	
	Social bots among followers (%)	**Active bots** among social bots (%)	**Social bots** among followers (%)	**Active bots** among social bots (%)
AfD	3.181 (6,7 %)	88 (2,8 %)	5.325 (7,1 %)	90 (1,7 %)
CDU	16.419 (10,2 %)	399 (2,4 %)	21.981 (9,9 %)	363 (1,7 %)
CSU	13.759 (11,2 %)	253 (1,8 %)	17.238 (10,4 %)	236 (1,4%)
FDP	16.180 (10,9 %)	287 (1,8 %)	26.087 (10,7 %)	338 (1,3 %)
GRU	19.287 (6,6 %)	196 (1,0 %)	38.549 (10,8 %)	485 (1,3 %)
LIN	1.696 (1,1 %)	9 (0,5 %)	18.734 (9,4 %)	243 (1,3 %)
SPD	7.212 (2,8 %)	267 (3,7 %)	35.697 (11 %)	445 (1,3 %)
Mean	**11.105 (7,1 %)**	**212 (2 %)**	**23.373 (9,9 %)**	**314 (1,4 %)**

Finally, we analysed the content of the tweets from social bots in the non-electoral and the campaign periods. Of the 100 most frequent hashtags distributed by social bots following a German party in the non-electoral period, the popular bots used 13 political hashtags (the frequency of a hashtag's use ranged from 34 to 2,375, median = 71.5) and the most active bots 30 (the frequency ranged from 30 to 1965, median = 65.5). With one exception, these political hashtags did not refer to German politics. They covered issues concerning politics in Austria, the EU (without a focus on Germany), France, Great Britain, Nigeria and the U.S. The one exception was one very popular bot that distributed the hashtag #AfD to promote its political agenda, with a total of 53 tweets. Most non-political hashtags and tweets were advertisments (ads for jobs, paintings, financial investments, etc.).

During the campaign period, the use of political hashtags decreased. Of the 100 hashtags analysed for each set, the most popular bots used only seven political hashtags (the frequency ranged from 12 to 2,263, median = 23), the most active bots only eight (the frequency ranged from 42 to 1,916, median = 73.5). Again, none of the political hashtags referred to German politics; most concerned U.S. finance and climate change politics (such as #MisesInstituteUSA,

#DavidStockmansContraCorner, #environment, #green, #climatechange). Fewer hashtags related to Nigerian politics (#Biafra). Similar to the non-electoral period, most hashtags had a promotional purpose (#yoga, #realestate, #porn, #software, etc.) in the campaign period.

Regarding RQ5, neither the most popular nor the most active bots tweeted more political content during the election campaign than during the non-electoral period. However, we need to be cautious and cannot generalize from the 400 most active and most popular bots, because they are not representative for the overall bot population. It may well be possible that bots did not include one of the 400 most used hashtags in their political tweets or that they actively disseminated electoral propaganda without following a political party and would therefore not be included in our data.

6. Discussion

Social bots in the digital public sphere pose at least three challenges for political communication research: theoretical challenges to established concepts of social science, empirical challenges of detection and the measurement of impacts, and methodological challenges to the general validity of popularity cues and social media analysis.

In summary, we analysed Twitter follower accounts of seven German parties before and during the 2017 electoral campaign. The analysis confirmed previous studies by showing that the share of social bots among these parties' Twitter followers increased from 7.1% before to 9.9% during the election campaigns. Three research questions resulted in findings diverging from previous studies: the share of active social bots did not increase during the election campaigns; AfD did not have more bot-followers than the other parties – on the contrary, it had the smallest share. The bots that we identified distributed almost no hashtags connected to German politics. These findings have significant implications.

Connecting our findings to Ferree et al.'s (2002) four normative models of the public sphere, the potential damage caused by social bots in election campaigns covers a spectrum of

problems. From a representative-liberal perspective, the results show that bots caused a quantitative misrepresentation of popularity, because roughly 10% of Twitter followers were bots disguised as humans. In particular, in the case of SPD and Linke, the share of bots among followers increased by more than 8% during the campaigns. Thus, their follower growth of 22% each appears bigger than it really was if we only accept humans as authentic followers. Thus, social bots did manipulate popularity cues, disturbing the principles of proportionality and transparency during the campaigns. However, their impact remains purely in numbers, because we found hardly any political content spread by bots that related to the election. From a participatory-liberal and discursive perspective, it is interesting that the share of bots increased during election campaigns. In this tradition, the focus is much less on elections than on popular inclusion and authentic debate with genuine contributions at all times. The share of active bots (bots that like, share, comment and discuss) was very low: 2% and less in both waves. While the proponents of participatory-liberal and discursive understandings of public spheres would not exculpate bots as non-authentic participants in political debate, the low bot activity and their predominant distribution of non-political content would certainly be a consolation for them. From a constructionist perspective, the low bot activity is a greater reason for concern. Seeing it as crucial to include previously silent, marginalised voices in public discourse, the presence of software actors deliberately designed to manipulate popularity cues or contributions totally undermines the notion of a public sphere, whether during an election campaign or at any other time, whether or not they are active.

Another interesting, perhaps peculiar pattern that begs for theoretical reflection relates to right-wing populist AfD. In line with current literature pointing to the rather thin empirical evidence for echo chambers (Dubois & Blank, 2018; Fletcher & Nielsen, 2017), the increase of multi-party followers in the electoral period indicates that echo chambers are indeed rather unlikely in the broader population of Twitter followers of German political parties in general. It rather seems that people who already follow one or more parties on Twitter, tend to expand

their following to more parties during the campaigns. Thus, to some extent, the parties in our sample share the same followers, and the number of followers increases in the second wave, because followers follow more parties during the campaigns than before. AfD, however, varies significantly from this pattern: AfD has by far the largest share of active followers (about twice as many as the other parties) as well as by far the highest share of single-party followers (45%, so about half of the AfD followers follow AfD only). Also, bots among AfD followers were particularly active. This can be read as an indicator that echo chambers are more likely to be found among AfD followers, may they be bots or humans. AfD followers seem to be much less interested in other political parties and to a much stronger degree form networks of like-mindedness.

From our descriptive data on bot presence and activity we cannot judge whether they caused any actual harm to the campaigns and the electoral process. We should also not forget about human actors who actively manipulate public discourse on Twitter. Other reports on the same election, that focused on other data (hashtags), found that "traffic about the far-right Alternative für Deutschland (AfD) accounts for a surprisingly large portion of Twitter activity given that party's share of voter support" (Neudert, Kollyani & Howard 2017: 1). What we can say for sure is that bots were clearly present, and their omnipresence on social media platforms, combined with their role in other campaigns, should keep social media researchers alert, providing a sound reason to closely monitor their activities.

Methodologically, social bots challenge the validity of social media studies: if a large part of likes, tweets, shares and comments originates from bots, how can results from quantitative studies measuring political actors' interactivity and popularity on social media be validated? The findings show that even the increase in followers needs further differentiation: Are new followers really 'new'? Are they even persons? We propose that a standardised test for bot activity should become part of empirical studies about political communication on social media, in order to ensure results' validity. To address this challenge, social scientists must

cooperate with computer scientists and push for more and better tools to monitor bot activity on social media platforms. This also entails a more critical stance towards the validity of data from social networks – a key question for research quality, and not only in political communication. When large numbers of interactions on social media platforms are generated by bots, this must be reflected in the results and conclusions of studies based on this data type, for instance, network analyses of political actors or analyses of campaign communication on social media platforms.

As with all single-case studies, this analysis has limitations. We examined only one election campaign, in one country, on one platform, with one bot detection tool. Future studies should compare various countries and compare their findings with different bot detection tools. One could also start with hashtags instead of follower accounts. Analysing hashtags would by default include exclusively active accounts that actually tweet, so that Botometer should perform better in such a design. Bot-detection is neither 100% accurate nor could it, in our study, deliver scores for about half of the accounts in our dataset. Building social bots that mimic human behaviour and building tools to identify them is a cat-and-mouse game. There is uncertainty about the accurate identification of bots; followers with a score around 0.6 remain hard to classify. The grey area is even larger when including Twitter accounts that produced an error: almost 89% of them had never sent a tweet ("no timeline error"). Is the sole purpose of these dead accounts or bots to make parties appear more popular than they really are? How many of them sent tweets but removed them before we could analyse the account? How many of them did not follow any political party but tweeted in favour of them? How many of the accounts with strict privacy settings, which we were not authorised to analyse, were bots actively tweeting?

Clearly, we need more empirical research into bots, their activities and impacts. Future studies should ask how Internet users make sense of and construct perceptions of reality from their online interactions. How much do they know about social bots' presence and activity? Are

they aware that they are interacting with social bots? Do they recall instances of interaction with bots? What are their perceptions of and opinions about social bots? Because people know what they know and what to think about from mass media (Luhmann, 2000), scholars should also analyse how journalists cover social bots. Are bots on media agendas? How is coverage about bots framed (as a technological phenomenon or a social issue)? Finally, researchers must remain alert to social bots and their influences on established theoretical concepts, digital empirical data and current methods when analysing digital communication.

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Study 5: Incidental News Exposure on Facebook as a Social Experience

Incidental news exposure on Facebook as a social experience: The influence of recommender and media cues on news selection

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Abstract

Incidental exposure to shared news on Facebook is a vital but understudied aspect of how citizens get involved with politics. This experiment investigates the influence of recommender characteristics (tie strength, political knowledge, political similarity) and different media sources (tabloids, legacy and digital-born outlets) including multiple mediators (e.g., social pressure, outlet credibility) on incidental exposure to political news on Facebook. A 3x3 multi-stimulus between-subject experiment with two additional quasi-factors and 135 different stimuli was conducted using a representative sample (N = 507). Results showed that strong ties and recommenders with high knowledge increase news exposure, but the impact of knowledge is limited to recommenders with similar political opinions. Similar effects occur for different media types, which also have an independent impact on news exposure. Structural equation modeling reveals that media source effects are mediated through media perceptions, whereas recommender effects work via the desire for social monitoring and perceived issue importance.

KEYWORDS: incidental news exposure, news sharing, social ties, Facebook, experiment

In today's high-choice media environment, it has become easier for citizens to only select news that is in line with their political leanings (Stroud, 2010) or to avoid political news altogether (Prior, 2007). In such a setting, incidental news exposure (INE) may become increasingly important to ensure that citizens encounter counter-attitudinal information or at least remain connected to the political public sphere. Social network sites (SNS) have been accused of further limiting the chances of INE through algorithmic curation (Thorson & Wells, 2015), but have also been hailed as a promising new source of INE (Lee & Kim, 2017): Even Facebook users who have not intentionally subscribed to a news outlet or whose previous Facebook behavior has not marked them as a suitable target for sponsored posts by news organizations may encounter news articles in their newsfeed via social curation (Thorson & Wells, 2015), i.e., because someone in their personal network has shared an article. Though these personal news recommendations on Facebook are particularly important for citizens who do not follow news and politics on their own, we still know very little about the factors which turn incidental *contact* with news on Facebook into incidental news *exposure*.

Based on a multiple stimuli experimental study (N = 507), the article addresses this research gap by investigating which personal news recommendations the recipients are more likely to follow. Drawing on the concept of informational utility (Knobloch-Westerwick & Kleinman, 2012), we assume that incidental news contact is more likely to become incidental news *exposure* if recipients attribute a higher degree of utility to the recommended content. As Facebook provides a social environment for news use, the recipient of personal news recommendation is likely to draw cues for informational utility from the recommender. Following the lead of Turcotte, York, Irving, Scholl, and Pingree (2015) who investigated the impact of personal news recommendations by Facebook friends perceived as opinion leaders on *intentional* news exposure, we assume that recipients use informational utility cues based

on how politically knowledgeable or politically similar the recommender is (politico-social cues). However, we also look in more detail at informational cues based on the closeness of the relationship to the recommender (social cue) by contrasting close and weak ties. In addition, we investigate whether the media outlet as the source of the recommended article also provides relevant cues for its potential informational utility (media cues). And finally we uncover the underlying mechanisms that encourage people to read shared news articles on Facebook (e.g., social pressure, social monitoring, issue importance, or outlet curiosity).

Literature Review

Given the importance of an informed citizenry for democracy, the decline in the overall reach of the news media and its detrimental effects on political knowledge and participation (Prior, 2007) have become a growing cause for concern. The now dominant online media have been both feared for reducing *intentional* news exposure by allowing users to focus more easily on their own, often apolitical, interests (Scheufele & Nisbet, 2002) and praised for increasing the chances of *incidental* news exposure due to the sheer vastness of political information available online (Tewksbury, Weaver, & Maddex, 2001). A number of studies have focused on the impact of INE via SNS on political knowledge and political participation: Kim, Chen, and Gil de Zúñiga (2013) pointed out that INE was more beneficial for those who are already interested in politics, further widening knowledge and participation gaps. By contrast, Valeriani and Vaccari (2015) reported that INE helps reduce participation gaps. These contradictory results indicate, first, a lack of differentiation between incidental news contact (INC) and INE, and second, a need to better understand how (social media) users select news following INC, i.e., which factors then encourage INE through which underlying mechanisms, particularly on SNS (Karnowski, Kümpel, Leonhard, & Leiner, 2017).

Recommender Cues as a Heuristic for News Exposure on Facebook

Beyond sponsored posts by news companies, INC and INE on Facebook are mostly social experiences: They can occur when someone from a user's social network recommends an article by sharing it. A promising way to determine whether such an article is then selected is the *informational utility* approach. Atkin (1973) proposed that information is perceived as more useful – and thus more likely to be read – the better it meets the individual's needs for surveillance, performance, guidance and reinforcement information that support his or her cognitive, affective, behavioral or defense adaptation to uncertainty. However, news products' informational utility can only be assessed after consumption. Hence, *heuristics* triggered by informational cues play a decisive role in deciding whether to select a specific news item or not (Marewski, Galesic, & Gigerenzer, 2009). While the informational utility concept has successfully been applied to explain, for example, selective exposure to online sources (Knobloch-Westerwick, Carpentier, Blumhoff, & Nickel, 2005), this articles explores whether the additional information on recommenders embedded in shared news on Facebook also provides users with cues relating to the informational utility of the recommended articles, and how these relate to an individual's information needs as proposed by Atkin (1973).

The impact of these informational cues related to the recommender should be comparatively strong as news exposure on Facebook is a far more social experience than in traditional media: Whereas concrete newspaper articles or newscast items might become the topic of interpersonal conversations from time to time, on Facebook a direct response or interaction following a news recommendation is far more likely. In addition, others can monitor whether the user has followed their recommendation whenever he/she reacts to the article (e.g., by commenting on it).

Still, Facebook friendship networks consist of a wide range of different types of relationships – close friends, co-workers, distant relations, etc. – in other words both strong ties

and weak ties (Granovetter, 1973). For the question of INE via news recommendations, weak ties on Facebook are important because they potentially offer more (politically) diverse and new information compared to strong ties (Bakshy, Rosenn, Marlow, & Adamic, 2012). However, recent large-scale data analysis suggests that strong ties exert more influence than weak ties over the behavior of others in an individual's personal network (Bond et al., 2012). This would suggest that Facebook users are also more likely to read articles recommended by close friends.

There are two psychological mechanisms which may explain this influence of tie strength on news recommendations. According to Nadkarni and Hofmann (2012), Facebook use is driven by two main motives: the need to belong and the fear of ostracism. Social networks are used for "social grooming" (Tufekci, 2008), i.e., for fostering relationships to satisfy one's need to belong. On the one hand, Facebook can thus be a positive tool for *social monitoring*, its use even increasing the "inquisitiveness" about one's social network (Karakayali & Kilic, 2013): Facebook users want to learn more about their own social network, their actions, interests and opinions, as this information is useful for maintaining or even intensifying the relationships. Just as the posted profile information, status updates and holiday pictures, news recommendations by friends can actively be used for this form of digital social monitoring. By reading the recommended article, the user can expect to learn more about the political opinions and interests of their friends which may be useful for future interactions by reducing communicatory uncertainty and thus fulfill the need for performance information (Atkin 1973). News recommendations by strong ties should thus have a greater informational utility as they allow users to increase their knowledge of the people they often interact with or value highly.

However, there is also a downside to this usefulness of Facebook for social monitoring: It occurs in both directions. Facebook users know that their own actions are also monitored by their social network (Marder, Joinson, & Shankar, 2012). Looking at Facebook chats, Mai,

Freudenthaler, Schneider and Vorderer (2015) found that fear of isolation and ostracism increased the perceived *social pressure* to respond to messages. Similarly, users may feel social pressure to comply with news recommendations. Even though there is no direct social control – the recommending friend can only see whether friends have followed their recommendation if they react to it – being on Facebook creates a feeling of co-presence. This feeling of being observed (Marder et al., 2012) on Facebook may motivate users to follow the recommendations of a close friend and read the article simply to maintain the relationship, not because they are interested in his/her opinions and interests in the specific situation (i.e., social monitoring). Thus, we propose that both, social monitoring and social pressure, mediate the effect of tie strength.

H1: Recommendations by strong ties lead to higher news exposure than recommendations by weak ties and articles without recommendation.

H2: The effect of tie strength on news exposure is mediated via (a) an increased motivation for social monitoring and (b) greater perceived social pressure.

The informational cues provided by the news recommendation of a friend, however, are not limited to these social cues related to how useful the article might be to manage personal relationships. The recommender may also trigger social cues related to how useful the recommended article might be for political questions (i.e., politico-social cues). According to the informational utility approach, people perceive news to be more useful if it provides them with information to satisfy guidance needs, i.e., to learn about and understand developments that may affect them and develop an opinion on them (Atkin, 1973). The usefulness of the information for guidance is perceived as higher if it comes from (or is recommended by) someone with expertise in the relevant field (Metzger & Flanagin, 2013). Especially on Facebook, where users feel (more) overloaded with news and information than, for example, while watching television (Hargittai, Neuman, & Curry, 2012), politico-social cues gain

importance. Turcotte et al. (2015) demonstrated that opinion leaders' news recommendations on SNS increased the trust in the recommended news outlet and led to more intentional news exposure (news seeking) in the recommended news outlet than recommendations by persons not perceived as opinion leaders. An article shared by a friend who is perceived to be knowledgeable about the subject should thus have greater informational utility for the recipient because it signals that the article is perceived as relevant and recommendable by someone who has a comparatively high level of knowledge on the topic allowing the recipient to apply the expert heuristic.

H3: Recommendations by Facebook friends perceived to be highly knowledgeable about the topic of the news article lead to higher news exposure than those by less knowledgeable friends and articles without a recommendation.

According to partisan selective exposure theory, people employ a confirmation bias when selecting news and are more willing to expose themselves to attitude-consistent than to attitude-discrepant information as this fulfills their need for reinforcement (Knobloch-Westerwick, Johnson, & Westerwick, 2015; Metzger & Flanagin, 2013). Hence, knowing whether the friend shares the same political leanings could serve as a further heuristic to help decide whether the article contains useful information and should be read. The results of large-scale data analyses support this proposed mechanism on SNS – at least for political issues. Bakshy, Messing, and Adamic (2015) analyzed the subsequent usage of 7 million shared news articles on Facebook and found that only 20 to 30% of all clicked-on news articles were from politically dissimilar ties; the majority of articles that were ultimately read were recommended by like-minded ties.

H4: Recommendations by Facebook friends perceived as having a similar opinion on the topic of the news article lead to higher news exposure than those by friends with a dissimilar opinion and articles without a recommendation.

Within the rationale of confirmation bias, it seems likely that the expected effect of the perceived knowledge of the recommender (see, H3) is not independent of the perceived opinion similarity. Users might expect news recommendations by friends with high topical knowledge to be *even more* useful when the recommended information is likely to be not only of superior quality but also to confirm existing beliefs. In contrast, news recommended by friends with high knowledge but a dissimilar opinion might still be perceived as useful for guidance needs and for specific goals such as preparing for a debate on the topic (Hart et al., 2009). At the same time, however, those recommendations could pose a serious threat to opinion reinforcement as they can be expected to contain strong counter-arguments to one's own opinion and should thus be selected less (Hart et al., 2009). We investigate this possible interaction by asking whether the effect of the perceived knowledge of the recommender persists regardless of the expected utility to reinforce existing opinions.

RQ1: Does a friend's perceived political knowledge interact with perceived opinion similarity in predicting news exposure?

To better understand why political knowledge and similarity of the recommending friend might affect the recipient's news exposure, we will also take a look at the role of perceived issue importance as both as an independent outcome of news recommendations and as a mediator for news exposure. Traditionally, perceived issue importance was seen – on an aggregate level – as being driven by the media agenda in agenda setting processes. When taking a more fine grained look, however, it emerges that the perception of the relevance of a specific issue is not universal, it differs between social groups, or more precisely, issue publics, which are each more likely to select articles on "their" issues (Bolsen & Leeper, 2013). Furthermore, people are aware of these differences in issue importance between different groups and will adapt their assessments of issue importance accordingly: They are aware that some issues are

more important to themselves personally than to their social group or to society at large and vice versa (Glynn, Ostman, & McDonald, 1995).

Moreover, recent research has pointed out that it does not require exposure to complete news items for changes in perceptions of issue relevance to occur. According to Stoycheff, Pingree, Pfeifer, and Sui (2018), agenda setting can also occur as agenda *cueing* when cues such as the number of posts about a topic are used to evaluate the relative importance of this topic. Still, given the social nature of INE on social networks, citizens' perception of issue importance should be affected by the way in which it is brought to their attention, i.e., who "shared" and thus recommended the article. By sharing an article, the recommending friend clearly indicates that he or she believes this an important issue. If this friend is knowledgeable on the topic or has similar opinions on it, recipients should be more likely to trust his or her issue assessment and thus adjust their own perception of issue relevance which in turn should increase news exposure.

Though these news recommendations should affect all perceptions of issue importance, we assume that their impact should be felt more when assessing issue importance for oneself and for one's social group as people are focused on their own self-representation and the contact with their immediate social group on Facebook (Alhabash & Ma, 2017).

H5: Recommendations by friends that are perceived as having high knowledge or a similar opinion on the topic, and the interaction of both increase perceived issue importance for (a) society, (b) one's own social environment and (c) oneself.

Perceived issue importance or topic relevance has also long since been identified as a main driver of news selection (Rubin, 1994) and might thus mediate the recommender effects on news exposure: As the recommenders' high topical knowledge or opinion similarity increase the perceived issue importance, this could encourage news exposure. It remains to be seen, however, whether it is the perceived *general* relevance or the perceived *personal*

relevance of an issue that guides news selection (Bolsen & Leeper, 2013). Thus, we ask more broadly which kind of issue importance mediates the effects of the politico-social characteristics of the recommender.

RQ2: Does the perceived importance of an issue for a) society, or b) one's own social environment or c) oneself mediate the effects of the friend's perceived political knowledge, of the friend's perceived opinion similarity, and of their interaction on news exposure?

Media Cues as a Heuristic for News Exposure

Recipients have developed news preferences outside of Facebook, e.g., based on their political views (Iyengar & Hahn, 2009), their preference for entertainment rather than news (Aalberg, Blekesaune, & Elvestad, 2013) or for negative content and tabloid packaging (Kleemans, Hendriks Vettehen, Beentjes, & Eisinga, 2011). Since media outlets share the links to their news articles on Facebook, the users' news preferences should guide their news selection on the social network site, too. Therefore, we expect that recipients' news exposure differs for media source cues from legacy, tabloid and digital-born media according to their preferences.

Three possible underlying psychological mechanisms can explain how media source cues structure Facebook users' news exposure: They signal the *credibility* and *societal relevance* of political information, but also spark *curiosity* about an unknown outlet. First, if a reader perceives an outlet to be very credible, they are more likely to read articles from this source (Choi, Watt, & Lynch, 2006). Legacy news media (e.g., newspapers of record, such as the *New York Times*) are perceived to be highly credible sources of political information. By contrast, citizens consider the tabloid media (e.g., *The Sun*) to have significantly lower credibility (Urban & Schweiger, 2014). Experimental data confirm that users rely on media source cues to estimate the credibility of the information offered. The higher perceived

credibility of legacy media increases the likelihood that SNS users will select articles from quality media rather than tabloids (Winter & Krämer, 2014).

Second, users may choose to read a news story because of the *societal relevance* of the news outlet. In most countries, one or more news outlets are perceived as central sources whose news coverage is followed by a large share of the population, by political elites, or by other news media (Nielsen, 2012). Although articles from digital-born news providers look very similar to the products of mainstream media when shared on Facebook, the recipients lack previous experience with them, so their brand logo cannot serve as a media source cue on the potential credibility or societal relevance of the outlet.

Third, a shared article from an unknown source might spark *curiosity*. Stumbling over an unknown outlet raises arousal and thus curiosity as a coping mechanism. As they are easily able to find out more about the outlet – it is literally only one click away – their interest in reading the article increases (Silvia, 2008). Articles from an unknown source might thus be read out of curiosity about the newly discovered outlet.

Since legacy media are perceived to more credible and relevant, we expect legacy media to have a positive mediation effect via perceived credibility and societal relevance on reading intention compared to digital-born outlets and tabloids. We also expect outlet curiosity to positively mediate user's intention to read shared articles from digital-born outlets compared to legacy outlets and tabloids.

H6: News exposure to recommended articles differs by the type of media outlet.

H7: The effect of media type on news exposure is mediated through (a) perceived credibility of the outlet, (b) perceived societal relevance of the outlet and (c) curiosity about the outlet

Method

Design and sample

We conducted a randomized 3x3 between-subject multi-stimulus online experiment with two additional quasi-factors in Germany in March 2017. In all conditions, participants saw a mock-up Facebook stream containing a teaser for a political news article. First, we varied the *type* of centrist *media* as the source of the article (legacy newspaper vs. unknown digital-born outlet vs. tabloid newspaper). Second, *tie strength* manipulated whether the article was shared and recommended by a close friend of the participant (a strong tie), by a distant friend (a weak tie), or whether the article appeared without any recommendation in the Facebook stream. The recommender's political knowledge and opinion similarity were both measured as non-manipulated quasi-factors, i.e., as perceived by the participant receiving the recommendation.

Using an online access panel provided by the survey company Respondi, we recruited an interlocked quota sample representative in terms of age and gender of German Facebook users between 18 and 69 (following the official Facebook definition we defined users as those using their Facebook profile at least once a month). We tried to reach a statistical power (1-β) of .95 which would require 560 finished interviews for medium effect sizes (d = .5) given our complex design. However, necessary data cleansing due to failed awareness checks left us with N = 507 finished interviews (completion rate: 31.05%) which equates to a power of .92 assuming no missing values on covariates or quasi-factors. The average age was M = 38.45 (SD = 12.49). Similar to the German Facebook population, there were slightly more men (n = 268, 52.9%) than women in the sample and about half of the participants reported holding at least a high school degree (n = 281, 55.9%). Participants received vouchers for the completion of the survey.

Procedure and manipulation

After receiving their consent, age, gender, education, residency and frequency of Facebook use were measured. Then, participants answered questions on their interest in different topics. Next, we manipulated the tie strength, depending on the randomly assigned experimental group: we either prompted participants to think of a person to whom they feel close and with whom they have relatively frequent contact via Facebook or of a person from the participant's distant network (weak tie condition): "Please think of a person who is close to you (you only know distantly), with whom you feel personally strongly connected (feel loosely connected) and with whom you have regular (rare) contact via Facebook, e.g., through seeing his or her Facebook posts or through private messages. This could be a friend, a relative or your partner (former school friend, distant acquaintance or a former workmate), for example." To amplify the manipulation, participants wrote down the name of the person and rated how close they feel to the person and how often they had contact with them via Facebook. We presented the name of this person in each question and told respondents that they should keep them in mind before the stimulus was shown next.

The stimuli for all conditions consisted of three parts (see Online Appendix B). The first part told participants to imagine that the following two posts originated from the chosen person, displaying the name again. Participants in the "no recommendation" condition saw the same reminder, but were told that only the first post originated from the imagined person. The second part was an apolitical post by the imagined recommender about vacation pictures. This part was constant in all conditions to increase the realism of the Facebook stream. The third part consisted of a posted news article showing the headline, a picture, and a short teaser. For tie strength, the weak and strong tie condition saw the news article as a shared post with a recommending comment as it typically appears on Facebook. The profile picture and the name of the recommender were pixelated so that participants could imagine the profile picture and

the name of the chosen person. For participants in the no recommendation conditions the news article appeared without a recommendation as an original post by the media outlet. For the media source cue, we varied the logo, name, and URL of the media outlet from which the news article was initially posted using their real Facebook pages.

To enhance our external validity, we used three multi-stimulus factors. First, we used two different but comparable media outlets per media type: *Süddeutsche Zeitung* (645,099 fans as of 15 March 2017) and *Frankfurter Allgemeine Zeitung* (458,649 fans) as legacy outlets and *Telepolis* (20,574 fans) and *Krautreporter* (86,879 fans) as unknown digital-born media. The only exception is the tabloid condition, because *Bild Zeitung* (2.280.155 fans) is the only national tabloid. Second, the news article dealt with one of five comparable topics (*regulation of monopolies*, *elections in Serbia*, *transparency of lawsuits*, *water protection*, and *broadband expansion)*, all of which were political topics, hard news, moderately relevant, and without issue ownership of a specific party. Third, we used two comparable sentences for the recommendation of the news article by the Facebook friend: "Finally a report that summarizes the whole issue. It's worth it!" and "Finally an article that puts the topic straight. Readable!" Due to these multi-stimulus factors, our experiment used 135 different stimuli for the nine experimental conditions.

We measured our mediators and dependent variable after the participants had seen the stimulus. Next, we asked for quasi-factors and manipulation checks. Lastly, the participants answered some basic questions on their general media use before debriefing.

Measures

Dependent Variable. The *intention to read* the news article was measured through four items using 6-point scales from 1 to 6 (e.g. "I would like to read what the news article

contains."). The items showed high reliability (Cronbach's α = .97) and were summarized to an index (*M* = 3.87, *SD* = 1.45).

Politico-social quasi-factors. Regarding the topic of the news article, we measured *perceived opinion similarity* between the participant and the recommender using a single item on a 7-point scale from 1 to 7 ("Please remember the topic of the news article. Would you say that you and [name] have rather the same or rather an opposite opinion on that issue," *M* = 5.11, *SD* = 1.32). With a second single item using a 7-point scale, the participant assessed the *perceived knowledge of the recommender* on this topic ("What do you think, how much knowledge has [name] about the topic of the news article?", *M* = 3.80, *SD* = 1.64).

Politico-social cue mediators. The perceived importance of the topic of the news article was measured on three dimensions using three items on 6-point scales for each dimension: *perceived importance of the topic for the society* (e.g., "The topic is important for the whole society," α = .94, *M* = 4.14, *SD* = 1.13), for the *own social environment* (e.g., "The topic is relevant in my social environment," α = .97, *M* = 3.27, *SD* = 1.35), and for *oneself* (e.g. "The topic is significant to me", α = .97, *M* = 3.43, *SD* = 1.44).

Social cue mediators. Perceived *social pressure* to read the article was measured with three items (e.g., "I would have read the article because my social environment would expect it of me.") on 6-point scales and summarized to an index (α = .90, *M* = 1.71, *SD* = 1.03). Motivation for *social monitoring* was assessed with three items (e.g., "I would have read the article because I could better assess what opinion [name] has on this topic."), again using 6-point scales and computing an index (α = .97, *M* = 3.22, *SD* = 1.54).

Media cue mediators. The participants were asked to choose the one media outlet they had seen in the stimulus from a list of twelve names. The *perceived credibility of the outlet* was measured with five items adapted from Tsfati (2010), each of which used 6-point scales (e.g., "The media outlet is credible", α = .98, *M* = 3.08, *SD* = 1.53). *Societal relevance of the outlet*

was asked with four items, again on 6-point scales (e.g. “Issues concerning the whole society are the focus of the media outlet”, α = .93, *M* = 3.81, *SD* = 1.30). In addition, we gauged participants’ *outlet curiosity* using one item (“I would have read the article because I did not know the outlet and was curious what kind of outlet it is”, *M* = 2.25, *SD* = 1.42). Only participants who correctly remembered the media outlet were asked their perceptions of the outlet to which they were exposed (*n* = 254, 50.1%). However, our analyses still include those participants that could not remember the outlet because we assume that media cues could be effective even without a correct recall of the outlet. Participants with missing values on these mediators will only be excluded pairwise when testing the media cue mediators.

Control variables. We measured *Facebook usage* with two items allowing us to calculate the Facebook use per week in hours (*M* = 6.25, *SD* = 8.77). To measure the *previous topic interest*, we used a battery of ten items on 7-point scales. Five of them asked for the participants’ interest in each of the five topics we used for the news article, and five were on other topics for distraction (*M* = 4.27, *SD* = 1.67). Lastly, we asked whether the participants are *following any news site on Facebook*: 59.8% (*n* = 303) reported that they did not follow any news site. We performed a simultaneous confirmatory factor analysis with all our measures showing that all items loaded on the expected factors (RMSEA = .030, CFI = .987, SRMR = .034).

Manipulation check and tests of internal validity

We asked the *perceived social utility of information of the chosen recommender* at the end of the questionnaire with four items on 6-point scales (e.g. “I like to be up to date regarding [name]”, α = .97, *M* = 3.83, *SD* = 1.68). An independent t-test confirmed that information from strong contacts (*M* = 5.14, *SD* = .84) had a significantly higher social utility than information from weak contacts (*M* = 2.43, *SD* = 1.15, $t(370) = 26.03$, $p < .001$, $d = 2.69$). We also asked about participants’ familiarity with different media outlets revealing that we succeeded in

selecting media outlets with differing degrees of familiarity for the manipulation: 90% knew the screened legacy outlet and 95.3% knew the tabloid, but only 10.2% were familiar with the digital-born outlet (χ^2 (df =2, n = 507) = 337.60, p < .001, Cramer's V = .82).

Furthermore, we tested the internal validity of the experiment. First, we confirmed that the manipulation of the tie strength had no unintended spillover effects on users' intention to read or on measured mediators of the control group. Second, we checked whether our multi-stimulus factors worked successfully. There were no differences in the dependent variable or any of the mediators between the two recommendation sentences nor between the summarized media outlets per media type. In addition, the multi-stimulus factor topic showed no main effect on the dependent variable nor on the social, and media cue mediators nor interaction effects with our independent variables on these outcomes. That is, the results do not vary systematically by the five topics of the news articles. However, regarding our three politico-social mediators, the water protection issue was seen as significantly more important than the other topics. Therefore, we tested for metric invariance between this topic and all other topics displaying satisfying invariance (n = 507, RMSEA = .061, CFI = .957, SRMR = .059) and an alignment procedure showed no differences in the factor loadings. Thus, we summarized the topics as intended for the following data analyses but will control for the higher issue importance of the water protection topic in the mediation analysis.

Results

To test our proposed main and interaction effects (H1, H3, H4, RQ1, H6), we computed a factorial between-subject ANCOVA with the independent variables tie strength, knowledge of the recommender, opinion similarity, media type, and all possible interactions between them; the covariates previous topic interest, Facebook use per week, and the general following of any news site on Facebook; and reading intention as the dependent variable (see, Online Appendix

A for descriptive data and Table 1 for model coefficients). The recommender's level of knowledge and opinion similarity were integrated by using median splits ($n_{\text{dissimilar (1-5)}}$ = 151, 53.9%; $n_{\text{similar (6-7)}}$ = 129, 46.1%; $n_{\text{low knowledge (1-3)}}$ = 118, 42.1%; $n_{\text{high knowledge (4-7)}}$ = 162, 57.9%). Due to missing values on covariates and quasi-factors, our sample size decreased to n = 382 for this analysis. That is, the statistical power is reduced to .79 to find effects with a medium size (d = .5) but is still high enough to find strong effects (d = .8) with 1-β = .99. The model explained 27% of the variance (R^2 = .27, R^2_{adjusted} = .21) and was significant (p < .001).

Table 1. *ANCOVA test of between subjects effects for reading intention by media type, tie strength, opinion similarity, knowledge recommender, their interactions and covariates*

Factor	*df*	*F*	*p*	η_p^2
Adjusted model	29	4.45	< .001***	.27
CV Previous topic interest	1	30.26	< .001***	.08
CV Facebook use per week	1	4.05	.045*	.01
CV Following any news site (yes = 1)	1	9.12	.003**	.03
Media type	2	4.20	.016*	.02
Tie strength	1	7.08	.008**	.02
Opinion similarity (high = 1)	1	.41	.525	.00
Knowledge recommender (high = 1)	1	9.41	.002**	.03
Media type * tie strength	2	.14	.870	.00
Media type * opinion similarity	2	.34	.717	.00
Media type * knowledge recommender	2	.71	.490	.00
Opinion similarity * knowledge recommender	2	12.30	.001**	.03

Note. R^2 = .27, R^2_{adjusted} = .21, model is fully saturated but only significant (p < .05) factors or factors of interest for the hypotheses are displayed, * p < .05, ** p < .01, *** p < .001, n = 382

For tie strength (H1), we revealed a significant main effect ($F(1, 352) = 4.20$, $p = .016$, $\eta_p^2 = .02$). Simple effects displayed that articles recommended by close friends led to a significantly ($p = .024$) higher reading intention ($M = 4.21$, $SE = .11$) than those recommended by distant contacts ($M = 3.77$, $SE = .13$) or not recommended articles ($M = 3.79$, $SE = .13$, $p = .035$, all simple effects analyses included the three covariates and used the Šidák correction, all reported *p*-values are two-tailed). There were no differences between articles that were not recommended or recommended by distant contacts ($p = .99$). While we did not find a main effect of opinion similarity (H4, $F(1, 352) = .41$, $p = .53$), we detected a significant main effect for the recommender's level of knowledge (H3, $F(1, 352) = 9.41$, $p = .002$, $\eta_p^2 = .03$). Simple effects showed that recommendations from friends perceived to have high levels of knowledge about the topic led to a significantly ($p = .007$) higher intention to read an article ($M = 4.24$, $SE = .11$) than recommendations from friends perceived to have low levels of knowledge ($M = 3.73$, $SE = .13$) and articles that were not recommended ($M = 3.79$, $SE = .13$, $p = .020$); there was no difference between low levels of knowledge and no recommendation ($p = .987$).

For the media type (H6), we found a significant main effect ($F(2, 352) = 4.20$, $p = .016$, $\eta_p^2 = .02$). Simple effects showed that the intention to read articles from legacy newspapers ($M = 4.22$, $SE = .13$) was significantly ($p = .030$) higher than for tabloids ($M = 3.76$, $SE = .13$), but there were no differences between legacy and digital-born outlets ($M = 3.92$, $SE = .13$, $p = .28$) or between tabloids and digital-born outlets ($p = .76$).

We found a significant interaction between opinion similarity and recommender's level of knowledge (RQ1, $F(2, 352) = 12.30$, $p = .001$, $\eta_p^2 = .03$). Simple effects showed that the aforementioned main effect of knowledge is mainly shaped by the condition of high opinion similarity ($M_{\text{similar high knowledge}} = 4.58$, $SE_{\text{similar high knowledge}} = .15$, $M_{\text{similar low knowledge}} = 3.50$, $SE_{\text{similar low knowledge}} = .20$, $p < .001$) whereas knowledge does not have an effect when opinions are dissimilar ($M_{\text{dissimilar high knowledge}} = 3.90$, $SE_{\text{dissimilar high knowledge}} = .15$, $M_{\text{dissimilar low knowledge}} = 3.97$,

$SE_{\text{dissimilar low knowledge}}$ = .15, p = .747). To secure our finding, we performed an additional moderation analysis with PROCESS using the metric, mean-centered values for recommender's level of knowledge and opinion similarity, excluding the conditions with no recommendation from the analysis (new n = 289) and controlling for the influence of tie strength. This analysis confirmed the significance of both the recommender's level of knowledge (b = .20, p = .006) and the interaction between knowledge and opinion similarity (b = .08, p = .039). As Figure 1 illustrates, the effect of knowledge depends on at least a moderate opinion similarity. The Johnson-Neyman significance value is -.77 for the mean-centered opinion similarity, equating to a value of 4.39 on the non-centered 7-point scale.

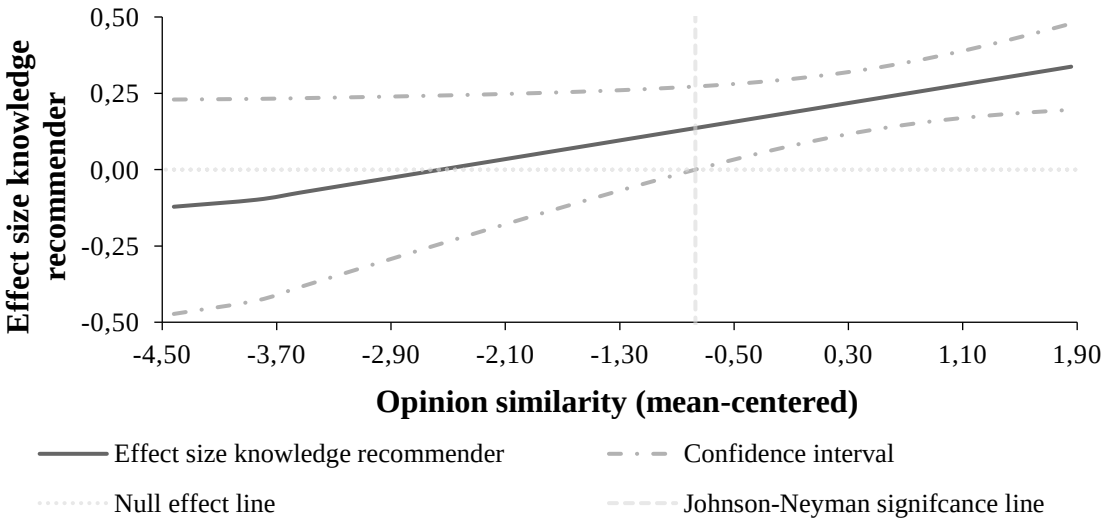

Figure 1. Effect of the knowledge of the recommender by opinion similarity controlled for tie strength. The variables knowledge of the recommender and opinion similarity were mean centered before calculating its interaction. n = 289

Additionally, there were no interactions between media type and tie strength (F(2, 352) = .14, p = .87), media type and opinion similarity (F(2, 352) = .34, p = .717), or media type and recommender's level of knowledge (F(2, 352) = .71, p = .49). That is, the recommender cues work the same for the three different media types.

To test for the proposed mediation processes (H2, RQ2, H7) and the experimental effect on issue importance (H5) beyond the already described main and interaction effects, we performed a structural equation model in R's lavaan package with the MLR estimator using tie strength, opinion similarity, recommender's level of knowledge, its interaction, and media source as exogenous variables, the social, politico-social and media cue mediators as latent endogenous variables; and reading intention as the final endogenous variable. Again, we excluded the conditions without recommendation, controlled for the same three covariates, and used the metric mean-centered values for recommender's level of knowledge, opinion similarity and its interaction. We split the categorical independent variable media type into dummies using legacy outlets as the respective baseline. In addition, we controlled for the topic of water protection to account for its greater perceived issue importance (CFI = .977, RMSEA = .034, SRMR = .032).

The results (see Figure 2 for the structural model and Table 2 for statistical tests on indirect effects) show that tie strength influenced the two social mediators. Strong ties increased social pressure (b = .48, p < .001) and social monitoring (b = .90, p < .001), but only social monitoring is associated with reading intention (b = .40, p < .001). The indirect effect of tie strength via social monitoring (H2a) is significant (unstandardized coefficient = .36, p < .001).

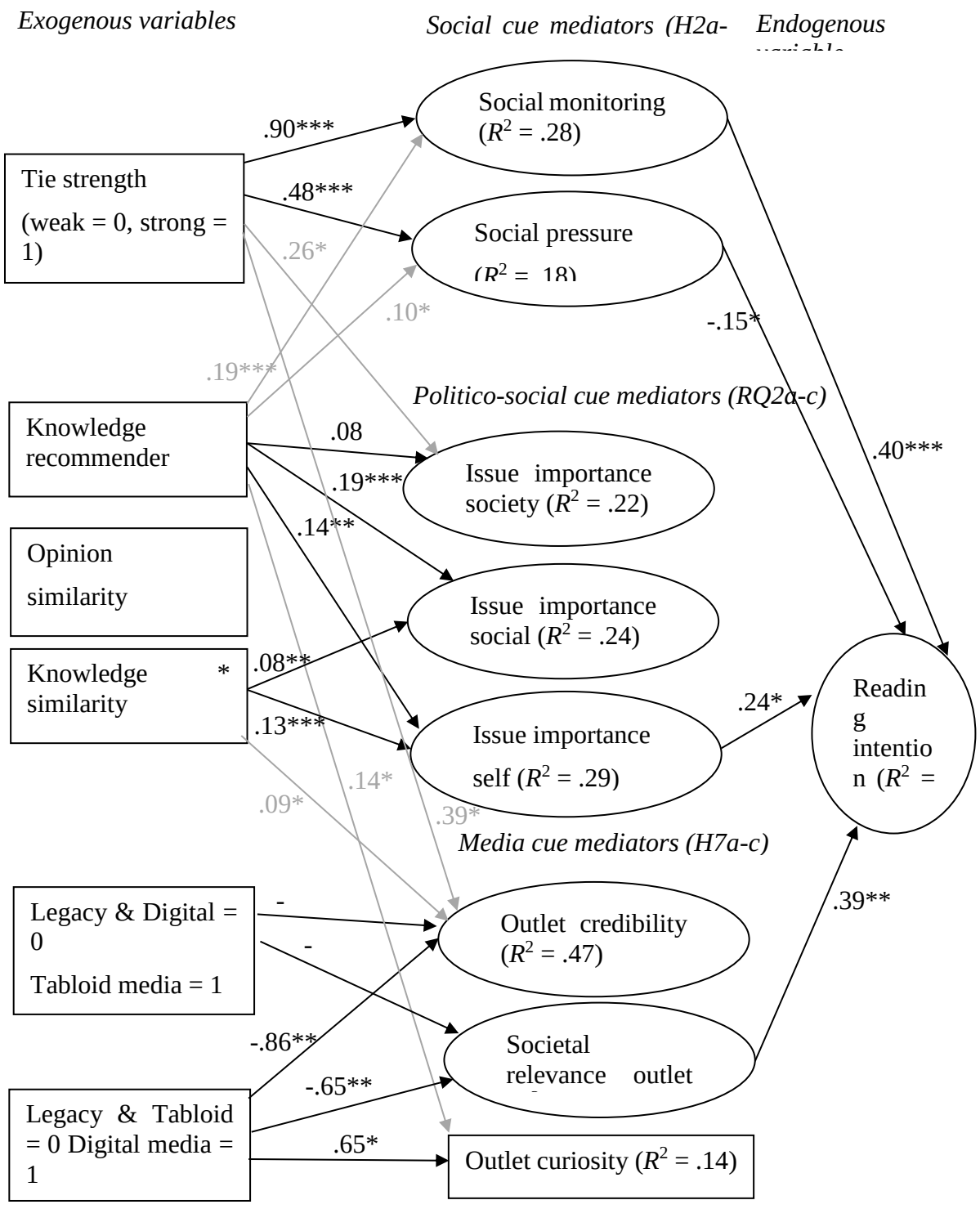

Figure 2. Estimated structural model. Displayed are only significant ($p < .05$) unstandardized coefficients. Black paths were hypothesized, grey paths are additional signficant coefficients. Measurement model, covariates and correlations between mediators are included but not shown for clarity reasons. *** $p < .001$, ** $p < .01$, * $p < .05$, $n = 332$, CFI = .977, RMSEA = .034, SRMR = .032.

Table 2. *Indirect and total effects of media type, tie strength, opinion similarity, knowledge recommender and the interaction between opinion similarity and knowledge recommender on reading intention*

	Unstandardized coefficient [95 % CI]	*p*
Tie strength (0 = weak, 1 = strong)		
Indirect: tie strength via social monitoring (H2a)	.36 [.21, .51]	< .001***
Total: tie strength on reading intention (H1)	.44 [.16, .73]	.002**
Knowledge recommender		
Indirect: knowledge via social monitoring (non-hypothesized)	.08 [.03, .12]	< .001***
Indirect: knowledge via issue importance self (RQ2c)	.03 [.00, .07]	.056†
Total: knowledge on reading intention (H3)	.15 [.05, .24]	.003**
Opinion similarity (OS) * knowledge recommender (KR)		
Indirect: OS * KR via issue importance self (RQ2c)	.03 [.01, .06]	.041*
Total: OS * KR on reading intention (RQ1)	.07 [.01, .13]	.037*
Legacy media (0) vs. tabloid (1)		
Indirect: legacy vs. tabloid via societal relevance outlet (H7b)	-.48 [-.86, -.09]	.015*
Total: legacy vs. tabloid on reading intention (H6)	-.48 [-.81, -.15]	.005**
Legacy media (0) vs. digital-born (1)		
Indirect: legacy vs. digital born via societal relevance (H7b)	-.25 [-.51, .00]	.055†
Total: legacy vs. digital-born on reading intention (H6)	-.37 [-.67, -.07]	.015*

Note. Only significant ($p < .05$) ore marginally significant ($p < .06$) coefficients are displayed. Non-significant coefficents and included covariates are not shown for clarity reasons. † $p < .06$, * $p < .05$, ** $p < .01$, *** $p < .001$, $n = 332$

The recommender's level of knowledge affected all three politico-social mediators (H5a issue importance society: b = .08, p = .035, H5b issue importance social environment: b = .19, p < .001, H5c issue importance self: b = .14, p = .001). Only issue importance for oneself in turn correlates with reading intention (b = .24, p = .018). However, the indirect effect of knowledge via issue importance for oneself was only marginally significant (unstandardized coefficient = .03, p = .056, RQ2c). Instead, the recommender's knowledge showed an indirect effect on reading intention via social monitoring (unstandardized coefficient = .08, p < .001). Opinion similarity showed no effects, but the interaction between knowledge and similarity increased the perceived issue importance of the social environment (H5b, b = .08, p = .006) and oneself (H5c, b = .13, p < .001). However, only the indirect effect on reading intention via issue importance for oneself was significant (unstandardized coefficient = .03, p = .041, RQ2c).

Media type had no influence on the social or politico-social mediators; it only exerted effects on the media mediators. Tabloid articles led to a significantly lower perception of outlet credibility (b = -2.29, p < .001) and societal relevance of the outlet (b = -1.23, p < .001) than those from legacy media. Among these mediators, only the indirect effect on reading intention via the societal relevance of the outlet was significant (unstandardized coefficient = -.48, p = .015, H7b). Digital-born media were perceived as less credible (b = -.86, p = .003) and less societally relevant (b = -.65, p = .003) than legacy outlets, but only the indirect effect via societal relevance was at least marginally significant (unstandardized coefficient = -.25, p = .055, H7b).

Discussion

Facebook (and other SNS) have been seen as promising sources of INE to assure an informed citizenry (Lee & Kim, 2017). However, the inherently social character of INE on

Facebook may lead to changes in the heuristics used by citizens to decide which of the news articles that they incidentally stumble upon they will actually read.

According to our experiment, there are three paths that encourage news exposure based on INC among Facebook users. First, social cues of the recommender increase reading intention via *social monitoring*: If the recipient feels close to the recommending friend, he or she will read the recommended article to increase their knowledge of the recommender. Although respondents feel stronger social pressure to read articles recommended by close ties, this does not produce greater intentions to read. More importantly, recommendations from weak ties do not motivate recipients to read the recommended article compared to articles that are not recommended. In other words, though weak ties are expected to be more diverse and should thus have a higher potential to recommend counter-attitudinal information, Facebook users are less likely to follow their recommendations, regardless of their political knowledge or the similarity of their opinions, or how respectable the recommended media source is. This phenomenon is further enhanced by the Facebook algorithm that assures that recommendations from weak ties as well as recommendations that do not match a user's interests are less likely to appear in their news stream. Hence, INE on Facebook can only have a positive impact on exposure to political news, and in particular on exposure to politically *diverse* news, if users have close ties to people who are interested in politics and have different political outlooks.

The second path reflects the importance of opinion leaders for INE in a social setting such as Facebook (see also Turcotte et al., 2015): Following recommendations by friends with high levels of topical knowledge and similar political opinions, participants believed the issue of the recommended article was more relevant to them personally and were hence more likely to read it. This, again, may facilitate exposure to like-minded news articles, but not cross-cutting exposure. Interestingly, political similarity alone does not predict reading intentions: according to our data, people are not motivated by a simple confirmation bias. They will not

read just any article because they expect it to confirm their views; they will read articles by recommenders with similar opinions and high political knowledge, which are more likely to contain *useful* arguments supporting their views. They are motivated by the *expected utility for opinion confirmation*. Our results may thus represent a next step towards developing a theoretical understanding of how opinion leadership works in SNS.

The third path relates to traditional media source cues: articles by legacy and (to a lesser degree) digital-born news outlets are perceived to have more *societal relevance* than tabloid articles and are thus more likely to be read when recommended. Contrary to expectations, perceptions of credibility differ by outlet type but have no impact on reading intention. This finding contradicts of a number of previous studies on the importance of credibility for news selection (Choi et al., 2006), but might be explained by the particular usage situation on a social network. As news selection on Facebook is a social experience, respondents apparently place more importance on whether an article is likely to contain *relevant* than *credible* information. This would indicate that when using Facebook, users are more concerned with *what people are talking about* than *whether is true* or not. This notion is corroborated by our finding that reading intentions, as well as perceptions of credibility and societal relevance, are higher for unknown digital-born outlets than for tabloids. Though legacy outlets are seen as more credible and societally relevant, Facebook users appear to give unknown sources considerable "benefit of the doubt" (at least compared to tabloids). This has important implications for the likelihood of mis- and disinformation by unknown sources being spread on Facebook. In addition, the non-significant interaction between tie strength and media cues indicates that recommender cues work the same for different types of media: recommendations also have a substantive impact on exposure to tabloids, even though they are seen as significantly less credible than legacy media. In fact, a recommended tabloid article is just as likely to be read (M = 4.03, SE = .18) as an article without a recommendation from legacy media (M = 4.02, SE = .23).

Apart from the effects on reading intention, our study allowed a more detailed look at how agenda setting effects may occur via agenda cueing on SNS. According to our study, SNS posts may not only affect perceptions of issue importance in general as found by Stoycheff et al. (2018), their impact differs depending on the recommender's socio-political characteristics and the scope of issue relevance: For evaluating societal issue importance, users followed the recommendations of highly knowledgeable, but not necessarily politically similar friends. In other words, they trusted perceived experts. However, indirect effects on reading intentions were limited to recommendations by highly knowledgeable, politically similar friends which increased the perceived issue relevance for oneself. Thus, future studies on agenda setting (or agenda cueing) in SNS should include different social- and socio-political characteristics to further distinguish the conditions for changes in perceived issue importance of different scopes.

These interpretations have limitations. First, our manipulation of tie strength did not use the real profiles of participants' Facebook friends but worked via imagination. However, the significant manipulation check and the main effect of tie strength showed that this manipulation worked. Still, one could argue that the entire experimental situation was rather artificial as the post itself did not appear in participants' real Facebook stream but as a simple screenshot of a stream, and participants were asked to imagine it was their own news feed. Thus, our experimental setting reduces the ecological validity of our results compared to the study by Turcotte et al. (2015) in which participants were deceived into thinking the friend actually posted the news article on Facebook. Second, our dependent variable only measured the *intention* to read the article, rather than real usage. Third, the five topics we used for the news articles were non-polarized. More polarized topics may lead to stronger effects of opinion similarity regardless of the perceived knowledge of the recommender. Fourth, our mediation analyses should be interpreted carefully as the mediator outcomes are only partly explained by our experimental manipulations but also by personal predispositions. That is, the explained

variance in news exposure by our mediation model originates only partly from our experimental factors. Lastly, we conducted our experiment in Europe, in a media system in which the audience is well aware of the differentiation between media types with respect to credibility and societal relevance. Thus, replications in different media systems are needed to confirm whether the media source still plays a role independent of personal recommendations.

Despite these limitations, this study showed that personal news recommendations motivate individuals to get involved with political news – if news are recommended by close friends or by contacts with high levels of knowledge and similar opinions on the topic. INE via Facebook may thus help keep people connected to the political public sphere, particularly those who are not connected via traditional media. However, our results also suggest that though news contact on Facebook may be "incidental" in the sense of "unintentional," it does not occur "by chance,", i.e., not all Facebook users will benefit in an equal manner. First, the likelihood of unintentionally encountering news (particularly diverse news) will depend for each user on their choice of Facebook friends (who may vary in their news-sharing habits) as well as their past reactions to shared news articles: The less they click on recommended articles, the less they will see news recommendations from friends in the future due to the news feed algorithm. Second, people do not treat all "incidental" news recommendations the same. Their news exposure following incidental news contact depends on social and political preferences, they prefer to maintain existing strong relations with others and to engage with news they expect to confirm their existing beliefs (by preferring recommendations from like-minded, knowledgeable friends).

In sum, INE via Facebook has the potential to maintain a normatively desirable connection to the public sphere, but this is limited by the configuration of Facebook's algorithm and the motivations of its users. As our study shows, people tend to follow INE recommendations by more homophile strong ties and knowledgeable, politically similar

contacts, i.e., INE on Facebook can easily be transformed into a form of self-reinforcing selective exposure. Thus, future research should continue to explore the potential of INE via Facebook and other social media platforms, but should pay close attention to its preconditions and circumstances because not all kinds of INE will contribute equally towards ensuring a well-informed public.

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Supplemental materials.

Appendix A

Table Online Appendix A. *Descriptive statistics for reading intention by factors media type and tie strength controlled for covariates*

Media type	Tie strength	*M*	*SE*	95 % CI	*n*
Legacy	Weak	4.08	.20	[3.69, 4.47]	43
	Strong	4.41	.20	[4.02, 4.80]	50
	Without recommendation	4.02	.23	[3.56, 4.48]	30
	Overall	4.22	.13	[3.97, 4.47]	123
Digital-born	Weak	3.65	.23	[3.19, 4.10]	37
	Strong	4.19	.19	[3.82, 4.55]	55
	Without recommendation	3.93	.23	[3.49, 4.37]	32
	Overall	3.92	.13	[3.65, 4.18]	124
Tabloid	Weak	3.57	.22	[3.15, 3.99]	38
	Strong	4.03	.18	[3.68, 4.37]	57
	Without recommendation	3.42	.20	[3.02, 3.81]	40
	Overall	3.76	.13	[3.51, 4.00]	135
Overall	Weak	3.77	.13	[3.52, 4.01]	118
	Strong	4.21	.11	[3.99, 4.42]	162
	Without recommendation	3.79	.13	[3.54, 4.04]	102
	Overall	3.96	.07	[3.81, 4.11]	382

Note. Previous topic interest, amount of Facebook use, and general following of any news site were included as covariates to estimate the means, CI = confidence interval.

Appendix B

Original stimulus (example)

Zur Erinnerung, beide Posts stammen von:

Peter

[redacted]
1 Std. ·

Schau mal, was ich im Urlaub entdeckt habe! Mehr findest du auf www.meine-urlaubsfotos.de/album_233

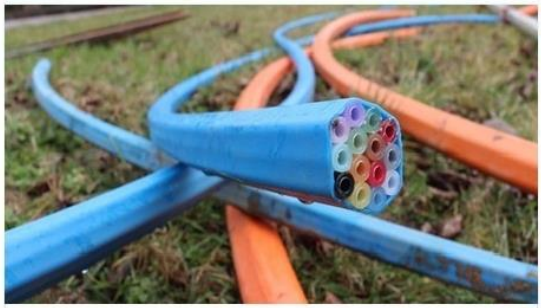
12 2 Kommentare 1 mal geteilt

Gefällt mir Kommentieren Teilen

[redacted] hat Süddeutsche Zeitungs Beitrag geteilt.
1 Std. ·

Endlich einmal ein Artikel, der die gesamte Thematik auf den Punkt bringt. Lesenswert!

Süddeutsche Zeitung
2 Std. · Seite gefällt mir



Deutschland mit Rückstand beim Internetausbau

Bisher war hauptsächlich der ländliche Raum vom Highspeed-Internet ausgeschlossen. Doch in Zukunft könnten auch mehrere Städte vom technologischen Wandel abgehängt werden.

SUEDDEUTSCHE.DE

16 3 Kommentare 2 mal geteilt

Gefällt mir Kommentieren Teilen

English translation

As a reminder, both posts originate from:

Peter

[redacted]
1 hrs ·

See what I found during my vacation! You find more on www.meine-urlaubsfotos.de/album_233

12 2 Comments 1 Shares

Like Comment Share

[redacted] shared Süddeutsche Zeitung's post.
1 hrs ·

Finally an article that puts the topic straight. Readable!

Süddeutsche Zeitung
2 hrs · Like Page

Germany's backlog regarding internet access

Especially rural areas were excluded from broadband internet access so far. Yet, some cities might lose connection to the latest technological changes, too.

SUEDDEUTSCHE.DE

16 3 Comments 2 Shares

Like Comment Share

Curriculum Vitae

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Education

08/2015 – 07/2019	**University of Zurich, PhD Candidate** Department of Media and Communication Research (IKMZ) *«The Structuration of the Networked Public Sphere: How Politicians Attract Public Attention on Social Media Platforms».* Doctoral Committee: Prof. Dr. Mike S. Schäfer (U of Zurich) and Prof. Dr. Katharina Kleinen-von Königslöw (U of Hamburg)

09/2013 – 07/2015 **University of Zurich, Master of Arts**
Major: Media and Communication Science
Minor: Philosophy

Thesis: *«Different Actors, Different Uses? Swiss Politicians Use of Social Media»*

09/2010 – 08/2013 **University of Zurich, Bachelor of Arts**
Major: Media and Communication Science
Minor: Philosophy

Thesis: *«Better than Gatekeepers? Comparing Five News Aggregators»*

Professional Career (selection)

08/2015 – today **University of Zurich, Doctorate**

- Lead and execution of international research projects and cooperations of several years (focus: Social Media Research and Political Communication
- Teaching undergraduate students aspiring for the degree "Bachelor of Arts" in Communication and Media Studies (focus: Social Media Research and Political Communication)

09/2013 – 08/2015 **University of Zurich, Student Assistant**
At the divisions of Prof. Dr. Daniel Süss, Prof. Dr. Urs Dahinden, Prof. Dr. Otfried Jarren and working for Dr. Erik Jentges, Dr. Stefan Bosshart, Dr. Christian Wassmer,

- Teaching classes with over 300 undergraduates
- Assisting in several research projects

Publications (selection)

- Keller, Tobias R., & Klinger, Ulrike (2018). Social Bots in Election Campaigns: Theoretical, Empirical, and Methodological Implications. *Political Communication*, 1-19, https://doi.org/10.1080/10584609.2018.1526238
- Kaiser, J., Keller, T. R., & Kleinen-von Königslöw, K. (2018). Incidental News Exposure on Facebook as a Social Experience: The Influence of Recommender and Media Cues on News Selection. *Communication Research*, 1–23. https://doi.org/10.1177/0093650218803529
- Keller, Tobias R. & Kleinen-von Königslöw, Katharina (2018). Pseudo-discursive, mobilizing, emotional, and entertaining: identifying four successful communication styles of political actors on social media during the 2015 Swiss national election. *Journal of Information Technology & Politics, 7*, 1–20 https://doi.org/10.1080/19331681.2018.1510355
- Keller, Tobias R. & Kleinen-von Königslöw, Katharina (2018). Followers, Spread the Message! Predicting the Success of Swiss Politicians on Facebook and Twitter. *Social Media + Society, 4*(1), 1–11. https://doi.org/10.1177/2056305118765733

Awards and Honors (selection)

- **SNSF Research Grant** «Early Postdoc.Mobility» for my research project focusing on «Political Social Bots on Twitter: Typology, Prevalence, and Activity from 2007 to 2019» at QUT (Australia) from August 2019 to October 2020 (AUD 133.760)
- **Top Paper Award** in the section "Political Communication" of the International Communication Association (ICA) for the full paper submission "Social Bots in Germany's National Election 2017: Theoretical, Methodological and Empirical Implications"
- **Young Scientists Funding** for the research project «Different Political Communication Styles on Social Media» (CHF 2'000, USD 1.980)

Statements

Apart from one study, the synopsis consists of peer-reviewed journal articles in collaboration with other scholars. In order to follow the academic guidelines, I hereby declare who contributed to which step in the research process, and, if multiple authors contributed, who had the lead and who followed second and third. I collaborated with the following scholars: Johannes Kaiser (JK), Katharina Kleinen-von Königslöw (KKvK), and Ulrike Klinger (UK).

Table 1. Overview of the authors' contributions

	Planning	Theory	Data Collection	Methods /Analysis	Writing
To Whom Do Politicians Talk and Listen? Mapping Swiss Politicians' Public Sphere on Twitter	TK	TK	TK	TK	TK
Pseudo-Discursive, Mobilizing, Emotional, and Entertaining: Identifying Four Successful Communication Styles of Political Actors on Social Media during the 2015 Swiss National Elections	Lead: TK KKvK	Lead: KvK TK	Lead: TK KKvK	Lead: TK KKvK	Lead: KKvK TK
Followers, spread the message! Predicting the success of Swiss politicians on Facebook and Twitter	Lead: TK KKvK	Lead: TK KKvK	Lead: TK KKvK	Lead: TK KKvK	Lead: TK KKvK
Social bots in national election campaigns: Theoretical, empirical and methodological implications	Lead: UK TK	Lead: UK TK	Lead: TK UK	Lead: TK UK	Lead: UK TK
Incidental news exposure on Facebook as a social experience: The influence of recommender and media cues on news selection	Lead: JK TK KKvK	Lead: JK KKvK TK	Lead: JK TK KKvK	Lead: JK KKvK TK	Lead: JK TK KKvK

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Erklärung

Hiermit erkläre ich, dass die Dissertation von mir selbst ohne unerlaubte Beihilfe verfasst worden ist und diese Dissertation noch an keiner anderen Fakultät eingereicht wurde.

Ort und Datum Unterschrift

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